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S. MacLean

1967

Journal:

1967

Barrow, Alaska

feeding observation tables

insect samples

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Journal

3 June

Los Angeles, Calif. to Barrow, Alaska

Left L.A. at 0140 via United Air Lines to Seattle. Had to spend several hours there - met Hugh Nichols on his way back to Barrow from Poverty Program meeting in San Francisco. Arrived Fairbanks via Alaska Airlines about 10:00. Called George West from town, then spent the day running errands. Finally left for Barrow at 1700.

there was much snow on the Brooks Range and slope as far as we could see. Part of the trip was obscured by clouds. As we went under the overcast near Barrow saw several glaucous gulls and 1 Golden Plover. The tundra there is exposed only on ridges, and these are >75% covered.

Spent the evening at a farewell party for Cliff and Norma Alorfer, who are going down to Anchorage. People report many owls in the area - one resident near N.B.S. for much of the winter. Also a report of a burst of lemming activity in April, but not much since. Was pretty damn tired by the time things broke up. Saw a singing slate-colored (?) Junco singing in camp as I walked toward bed.

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4 June

Couldn't get any gear, it being Sunday. Last night and this morning were $> 0^{\circ}$, and good snow run-off is evident. Walked into Barrow and had to cross several streams. From Barrow went back to Browerville and walked along bluff over village lagoon. Longspurs were scattered along and displaying. Bunting far along. No shorebirds were seen.

5 June

Barrow, Alaska

Spent a productive morning gathering clothing, equipment, utensils, etc. They are painting our lab so I haven't been able to unpack yet.

After lunch drove out to Beach Ridge near Micro Her and walked around to Pitelka's Plot, then back. Red-backs were common - a number of pairs + several newly-arrived groups. Saw 2 bairn's and heard a semi-pal display. Only 1 of alpine gave full display. i.e. - it is still early. Ridge is ca. 80% snow covered. Saw a ♀ snowy owl on P's plot - Jaegers cruising the area.

Drove to Gasline Ridge for a quick look there - found 1 pr. aols, several pairs of red-backs, and scattered longspurs - strikingly quiet.

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[5 June]

Lemming sign is sparse - found 1 small area of Beach Ridge with continuous cutting, 1 nest (near 1) - unprepared. Certainly not enough mice to support the number of predators in the area.

After dinner walked into town to meet Wien, expecting Karl Tulain. Fog came in; Wien didn't. Saw 2 flocks of Oldsquaws heading north. These fly with a much more fluid flock structure than many other ducks, as Eiders.

Lone long-tailed jaeger flying near N.B.S. Semi-pals were frequent in melt puddles along beach. (See spp. account).

6 June

Barrow, Alaska

Wrote field notes in the morning, then went in to see Brewer. The usual session - took all morning. About the usual result. Brewer wants to hire Edna as a secretary - that was his main message.

Weather warm, but dense fog. After lunch has time for a brief trip out to Beach Ridge - fog has activity level way down. No new species - at least, saw only alpina. Came in and rode into town with Merle to relay

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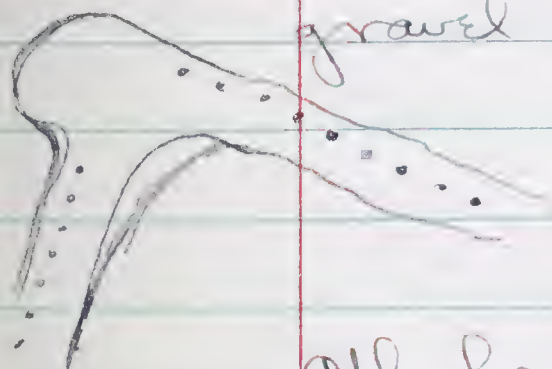
[6 June]

MCB's message to Edna. Stayed into
meet the plane, which failed again.
Good thing I came in on Saturday! Fog
finally cleared off around midnight, but
things were still quiet - saw semi-pale along
the beach and heard Pomarine Jaeger
territorial call.

1 June

Barrow, Alaska

Went up to Nuuk to distribute
barrels for guillemots today. took
Robert Okpasha and Josh Woods. Put
9 at intervals along spit and 7 on
gravel leading toward the Point facing
in 1 random direction. Some
have a hole knocked in the end -
others have no end at all.
all have drainage holes and sand in
the bottom. Now we just wait and
see.



Drove about 3 miles out onto
the ice to retrieve a wannigan. Most
of the ice near shore is smooth. Eiders
were flying low over the ice. Also
saw many loons along the shore - probably
headed for open water. Lead smoke is
far out - no sign of water. Whaling
crews are still out by the lead.

While Robert and Josh were

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[7 June] eating lunch I walked around the exposed tundra at Nuuk. Saw the first pectoral sandpipers of the year - 20707 with several bairds! A flock of about 16 sandpeeps was quite active in the area feeding (by vision) in ponds, but no display. Wanted to collect a few, but found I had 12 ga. shells for a 16 ga. shotgun. Had to settle for a few feeding observations.

Returned and rode into town with the man haul to go to Seaman's 9th grade graduation. It was funny! Walked back about midnight. Again - semi-pale along road by N.B.S. Saw several flocks of Oldsquaws, including one settled on large melt pond by Voth River.

8 June

Barrow, Alaska

Pitelka and Karl Tolonen arrived on last night's Wien flight - Karl after waiting in Fairbanks since Monday. The painting was finished in our lab, so we put it in order for most of the morning, then walked into the drum area. Weather again is quite warm and still - wore our in a jacket without hat and gloves. Snow is going rapidly - much of the drum area has been

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[18 June] exposed in the last 2 days. Saw white-crowned sparrow (♂) and heard tree sparrow. P. heard water pipit. Semi-pals were very numerous and active - chasing and displaying - but no bairros'.

after lunch the three of us took the weasel. Went first to west end of Gasline Ridge. Found the Owl nest reported by Tom Case - now 3 eggs. Heard almost no Sandpiper sound - finally 3 red-backs began a display bout. Saw several pectorals fly by. Next to Gasline Ridge, then to S end of P's plot, up the plot, and in. Owls were surprisingly numerous. Jaegers are abundant and becoming territorial. But still not much lemming sign!

Golden Plovers seen in good numbers - 1 displaying ♂ over W Gasline Ridge. 2 others were undisturbed by ♂ displaying above. Saw several groups of newly arrived pectorals - no display. P saw group of ca. 25 red phalaropes - the first of the year - fly over his plot.

Spent the evening working on specimen material. I will take 3 measurements on fresh bills: culmen length, culmen height taken as distal

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[8 June]

end of nostrils, and bill width at the same point, measured on the mandible. Must be careful in the field to avoid distorting the bill with the cotton wad. We are saving ca. 2 cm³ of pectoral muscle and the heart of all scelopacids for electrophoretic analysis by Alan Wilson at Berkeley. took measurements, muscle + heart, and stomachs of the birds collected today, then analysed stomachs while FAP put up the banderling. Mostly Tipular larvae in the stomachs.

Weather today - as the past few days - warm and clear in the morning, then colder and foggy in the afternoon and evening. this evening P. & I saw a peculiar colorless rainbow in the fog over Imikpuk.

9 June

Barrow, Alaska

the criminally warm weather continues, and the snow is melting rapidly. Even Central Marsh is just beginning to appear. the area as a whole remains ca. 85% snow covered. Saw the first flying insect - looked like a small bee. this is the earliest that I can recall seeing flying insects.

Maeha
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[9 June]

Drove out to Beach Ridge with Tap and Karl. P. went on to census his plot; Karl and I walked SW on ridge, toward Micro-met. Not a shorebird for first 500 m. or so, then found a flock of ca. 10 Pectorals. Chased these and a few redbacks around the area as I introduced Karl to the procedure of recording feeding observations. He seemed to catch on well - I hope he keeps at it. Had to rush in ~~the~~ along shore of Honeybucker Lagoon, then through Drain Area, to meet Edna for lunch.

After lunch and notes painted every other decimeter on a meter rule to use as scale for photographing habitat. Max and John Beck came by and occupied some time. Finally walked into drain area to check on Semi-pals. Situation very different from yesterday morning - found 4 pairs with little interaction. Still no Bairds'. More lemming sign exposed by melt here. Caught sight of one.

Returned and waited to see NCB to ask if Edna and I could fly to Fairbanks for shopping and to discuss future shorebird work with George West. Max said O.k. for an R4-D flight down

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9 June]

next Friday and back next Saturday. Went into town to relay this information. Learned that Joe Jr must report for the Navy on 11 July, so we will try to move the date up to 8 July - one week earlier.

10 June

Barrow, Alaska

Weather more typical of early June - a cold wind of 15+ knots from the East and a layer of ice on melt ponds. Went out to gasline area near Micro Mer with Pitelka to photograph. Finished color film in camera and shot 1 1/2 rolls of black and white (Plus X). In one location I was lying down shooting at the edge of the snow where a lemming runway went under the snow when a lemming appeared in the opening. Shot about 1/2 roll of him. We drove it out, and it turned out to be a juvenile Dicrostonyx. Yesterday's village sample included a Dicrostonyx, and at least 2 were caught locally during the winter. They seem to be up - traplines I & II should tell us.

More lemming sign was visible in areas recently exposed. Sign is quite spotty, but not scarce. Jaegers are still becoming territorial, and Owl nest

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10 June]

now has 4 eggs. Found a 4 egg longspur nest.

Shorebird activity was very low! Saw 2 ♀ pectorals near Muro Mer; heard a red-back W. of there and a semi-pal near honeybucket lagoon - and that was all. P shot a pair of red backs as I walked down to get kark to return for lunch. The absence of red-backs is puzzling; the others we can expect to see soon, but alpine should be here and active. It is still too early to panic, but it is disturbing.

After lunch walked around Family Lagoon. The wind was biting, but above freezing. Britton's Area is nearly snow free and almost shorebird-free. 2 displaying ♂ semi-pals and 1 ♂ red back (presumably ♀♀ around, too). Flock of ca. 8 sandpeeps feeding around melt ponds in gravel at Voth Road Inlet.

Continued S of FAD, where kark joined me. Melt is advanced in the low polygon area there - polygon centers and troughs are flooded, the rings exposed. Watched group of ca. 12 red phalaropes feeding in flooded polygons. Group of 6 pectorals also feeding in the

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10 June]

area. Saw only 1 Semi-pal and a few red backs. Jaegers quite abundant there, sitting quietly. A pair of owls near Lake Eater. A group of 7 ♂ + 1 ♀ pintails flew from a melt pond. Collected observations on pectorals and phalaropes, then came in when Karl became chilled.

after dinner wrote notes, then drove out to Voth Area with P. to collect Phalaropes. the fog has cleared, leaving a brisk, clear evening. Found a group of 5 by FAD and took them all - 3 ♂♂, 2 ♀♀. Drove in and spent the rest of the evening processing these and 2 alpine collected by FAD this morning. Phalarope stomachs had more *Pedicia* than anything else - one stomach and esophagus was full of them.

11 June

Barrow, Alaska

Walked into Barrow in the morning in beautiful warm, clear weather. the fog came in very quickly, however. It remained above freezing, but very dense fog. After church w/ Algea's son and I walked down Browerville ring - now exposed except for ravines leading into lagoon. Bird activity there was very poor - a few scattered red backs and 2 displaying

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[11 June] semi-pale. Spent the day in town - saw Rev. Samuel Simmons - returned late.

12 June

Barrow, Alaska

Day started foggy, but sun broke through and by noon it was warm and sunny. Walked out into the drum area - semi pale were more abundant and active than previous visit and baird's are finally here! A newly arrived group of 8 or more were spread about drum area - chasing and displaying. Found a ♂ King Eider in good plumage - injured or exhausted and not flying. Returned for camera and got an ARI Exacta to use for black and white. Shot the last of the black and white in my camera on the drum area pit-fall area and the king eider, then shot nearly a roll of Kodachrome on the birds.

After lunch went out with Karl and Pitelka to the Voth Area. Remained near Cake-eater to collect while Karl and I wandered toward Village Ridge to see if semi pale and baird's have moved in there. They haven't. Watched a pair of peckers in flooded low polygon area that has just opened up East of the ridge.

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[12 June]

On the ridge - a dispersing group of pectorals provided feeding observation. Found a 1 egg alpine nest. No semi-pals; no bairns. The pectorals were displaying and offer the most hope - but so far this is really a discouraging year.

after dinner took a siesta, then processed specimens and stomachs and did my laundry.

Saw the first Ranunculus today - a number of them on Village Ridge. Also caught a woolly fly - prob. the same as those seen earlier. Close examination of the ground reveals other flies - maybe it is time to check the tanglefoot sites.

13 June

Barrow, Alaska

Don Beaver arrived last night - met him at breakfast. Seems like a real good man - I think he'll work out well. After getting his clothing he headed straight out for the field (drum area) while we waited for him in the lab. Passed him on the way out. Pitelka and I drove to lower Gasline Ridge region. Wanted to go to Elson Lagoon area but too much wet slush on the ground to risk driving, so we returned essentially the

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13 June]

same route. Owl nest #2 - still 4 eggs. Checked other owls in the area. Baird Sandpipers seem to be moving into the area - there is hope. Still widely spaced redbacks, pectorals in small groups. Stopped near Micro Her and spent an hour working newly exposed areas to N. Saw several bairds and heard white-rumps, but still v. little activity there.

after lunch Karl and Don took off towards Voth Area; P and I went to South Beach Ridge. Foggier now, but still not very cold. Ridges are now nearly completely exposed; other areas just appearing. Today brought another day of good melt, but season is not at all advanced.

Found a 4-egg Turnstone nest at far South end of Beach Ridge, then wandered between there and Lavellyn's micro. One ♂ alpine was displaying persistently - otherwise, not much. Saw no semi-pals or bairds. Red back pairs are scattered about and now incubating. Golden Plover Density in that area is now about normal - birds are displaying or standing about, but don't appear to be incubating yet. Longspurs are still moving into new area as if

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13 June]

is exposed. Saw a ♀ longspur eat a big, fat tipulis larva. Flock of m. on P's plot.

In the evening we sat down with Karl and especially Don to discuss work for the summer. Don - after initially stating that his interests lie in the birds and \therefore conflict with mine - reversed himself and caught on well to the tipulis and Chironomus life history and ecology study idea. We kicked some thoughts around, and I think he will at least give it a good try. I think he should concentrate on tipulids this year to avoid the taxonomic mess, and am promoting that idea just a little.

Afterwards made a late run out to ponds near FAD and took 8 pond edge soil cores for berlesé extraction. Set these up, wrote notes, and so to bed.

14 June

Barrow, Alaska

The wind has shifted to the west, bringing much warmer weather - alternately clear and high overcast. Some rain in the morning, and more rain in the evening. Got an early start. Drove our Gaswell Road-hopper Karl as Cakester, then P, Don, and

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14 June I detoured around Voth Creek and drove to N. end of Footprint lake. This is largely filled with water and slush now to a depth of about 12". Saw a flock of ca. 140 ~~2~~ Pintails on Voth Slough, and 12 more on pond just N.W. of footprint. Shorebirds about as before - scarce. Drove back to Gasline Ridge and then to Micro Her. Saw and heard white-rumps. Heard a knot over Gasline Ridge. A newly arrived group of 10-12 pectorals was feeding and beginning to act up in sloping marsh N. of Micro Her. took a few feeding observations, found a 3-egg alpine nest, but mostly introduced Dan to local tundra and watched birds.

Sent our vessel in for repair in the afternoon, then got Dan started on equipment he will need. Removed animals from berlese collecting jars - so far 12 Pedicia, 3 Tipula, 6 annelids. If annelids are this abundant, why aren't they found in stomachs? Either they are not accessible or are not palatable. Could test the latter with feeding trials. Measured the tipulid larvae as a start toward determining size distributions. Set up a system for freezing animals and

Hatches
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4 June] counting as they are collected.

After dinner ~~with~~ went into town with John and Bill Beck. Ewa and I walked down Browerville Ridge to Village Ridge as rain started. Saw a chase of 3 pusillus and scattered red-backs. 1 bird was displaying over Browerville. Near NBS encountered a dispersing flock of Pectorals - they keep coming in and offering hope - they are certainly more abundant than '65 and '66. One pair of Golden Plovers along Browerville Ridge. The rain was warm and heavy for this time of year. At midnight it was positively hot! Had to take off my parka while walking. Village lagoon outflow was highest this year - snow must be melting rapidly. There is still much of it out there - ridges almost completely exposed; low places wet and slushy messes.

Put in a work order for another bank of berlese funnels, but I don't expect prompt action.

15 June

Barrow, Alaska

Removed and measured more Pedicia from Berlese collections. Saw back kept me immobilized in the morning - caught

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15 June]

up on field notes and stomachs and chased around in preparation for trip to Fairbanks tomorrow. After lunch went into the drum area. Checked pitfall traps - nothing yet. Several pairs of birds were very active. Watched behavior of these and semi-pals, including bairns nest-cup displays and copulation. Found a red-back nest close to camp in open part of drum area. A pair of pin-tails is acting as if they may nest. Longspur display is just about over. Still feeling badly, so came in and lay down until dinner.

after dinner walked into town and down Browerville Ridge. Very quiet - all forms of display were about over here. Heard bursts of semi-pal and red-back, but no well developed shabino display.

16 June

Barrow to Fairbanks, Alaska

Departure at 0830 - amazing for APL. Stopped at Umiat to drop Augie and supplies for Cape project. Spoke briefly with Cape - he reported all microtines were abundant. Few shabino birds in the area. Weather was quite warm - in the 70's - and mosquitoes were already out. After a bumpy ride

Marched
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16 June]

over the Brooks Range landed in Fairbanks. Temperature over 80° there, but no mosquitoes yet. Spent the rest of the day eating and shopping.

7 June

Fairbanks to Barrow, Alaska

Spent the morning at the laboratory of Zoophysiology talking with Dr. George West about the possibilities of post-doc work on shorebird metabolism and energetics. The idea is to complement work in progress on shorebird feeding and work, hopefully, to begin on insects to give an accurate picture of community interaction at the insect-shorebird level. We decided to concentrate on red-backs in the summer, probably birds netted in migration, and work on Golden Plovers year around to try to get as factors influencing timing and control of annual cycle events. This will require a winter colony of Plovers - the facilities are not enough to keep >1 species year around. The first step is to try to get some alpine and P.d. down to Fairbanks this summer to see how they do in captivity.

The day was again - hot! (86° F.)
Did more shopping - spent our last

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17 June]

dime - then off to the airport and took off for Barrow about 5:15 P.M. Much smoother ride this time. Landed about 8:45 - quick flight back. Weather still quite warm, and the snow melt in the past two days was evident. After wasting time waiting for a ride into town, deposited Edna and her various purchases and returned to bed.

18 June

Barrow, Alaska

Up for breakfast, then took wheel and pointed it toward the gas well. Voth Creek is now cross-able so move on to that area to South. Saw a flock of ca. 12 ♂ Pectorals - unusual.
2. Drove to area east of ~~the~~ Footprint Lake and spent the rest of the morning and all afternoon walking the area. Season is definitely floristically advanced. Ranunculus along shore of Footprint Lake are out in full. In places 3" of new green grass can be seen. Bumblebees have been seen for a few days, now. Birds, however, are by no means advanced. Watched several pairs of Golden Plover much display and territorial encounters and saw one copulation. Always pairs together or moving birds - no

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8 June evidence of incubation. Pectorals were confusing - ♂♂ were very abundant but ♀♀ were scarce. ♂♂ were displaying and loosely territorial. They quickly chased any female that I managed to flush. Saw a number of solitary Buff-Breeds, with some wing waving.

Walked over a lot of tundra without scoring a ♀ pectoral off of a nest, and only 1 alpine. Shot a ♂ + ♀ pectoral, then a plover on the way in and arrived in time for a late dinner.

Spent the evening working on these specimens and others collected in past few days.

19 June

Barrow, Alaska

Spent the morning finishing up specimens and notes. Both Tim and Karl want to mark birds so Tom and Don prepared mist net while I stayed out of the way by putting hardware cloth racks in our new bank of 8 bertése funnels. Went out to the drum area to put the mist net into operation. Set it by a telephone pole and tried to herd longspurs and sandpipers, with little success. Decided to leave the net set and see what flies into it.

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[19 June]

Don and I then walked toward Micro Her, talking about feeding observations and the insect problem. Saw 2 flocks of ♂ melanotos which we used for feeding observations. Checked the tanglefoot sites near Micro-Her - they are now ready to go. Found a 2 egg jaeger nest 100 m. west of tanglefoot sites and 80 m. N. of gasline.

Discussed a sampling program with Don. We concluded that this summer should be used to develop the sampling procedure, since most of the ecological information will result from accurate quantitative data regarding numbers, dispersion, etc. I think Don will do very well.

Might also comment that Tom has really caught on to the study of extra males in the longspur population. He is taking the initiative in thinking of approaches to the problem and is putting in a lot of time as well.

After dinner Tom, Don, and Karl went out to traplines I and II. I went along as far as Micro-Her, then walked in with shotgun ready to remove any preloved flocks. Found 3 buffies on

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[19 June] the polygons N. of Micro-Her - 1 displaying ♂ + 2 presumed ♀♀. No pectorals. The west wind has now given way to an East wind, bringing cold, foggy weather more typical of June.

Went into Barrow and took Eowa to the high area SW of Barrow near the ocean to look for buffies there. Saw none. A pair of bairns near Beck Construction Camp - otherwise nothing. This area characteristically supports both bairns and semi-pals. Saw the first flowering Penicularis lanata there. Interesting - it was completely out on the South-facing side, but not yet flowering on the North-facing; proof of reduced light intensity of the midnight sun. Grass growth is well along there - 3 inches in places. Saw a bumblebee. Returned to Eowa's and spent rest of the night and part of the morning addressing envelopes.

20 June

Barrow, Alaska

Spent the morning asleep. Woke around the lab, then rode into town with Herle to get our blood tests. Returned too late for the field so cleaned up stomachs and Berlézes. Had

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[20 June] a good conversation with Don and Tom.
Put up a ♂ longspur for Tom to use in
eliciting behavior and possibly luring
♂♂ into traps for banding. Not too bad,
for the first live mouse in a while.

Spent the rest of the evening at
a lasagna party at Rita Hornsby's. On
the way in to Barrow to pick up
Ewa for this saw a ♂ buff-breast
displaying along the side of the road.

21 June

Barrow, Alaska

The West wind is back, bringing
Bering Sea weather - high overcast,
warm, and rain. Drove out to Beach
Ridge and dropped Pitelka, then
~~Don~~ Don and I drove to area of Micro-
her Tanglefoot to take sed cores for
insect extraction. took 2 cores from
each of high polygon w/ sparse graminifera,
low polygon, polygon trough, wet
marsh, and pond edge, using our
metal corer. Don will dry the wetter
samples in the berlese funnels, and
hand pick all samples. Right now, in
addition to censusing, we want to find
out how much Don can hope to effectively
sample.

Don then drove to check on

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21 June] Pitelka in the rain while I walked in with the shotgun to dispatch some pectorals from a flock feeding between aacs and Micro Met. Collected 4, then walked in. Met Tom along the way and talked about Longspurs, then came in.

Processed specimens in the afternoon - the pectorals were nearly empty. Also cleaned up a trapline alpina and Ph. fulicarius. So far stomach collection leans strongly toward melanotos - maybe I should go inland to do some collecting.

After dinner drove out toward traplines I & VI with Tom and Don. Saw a flock of pectorals and 2 turnstones in Central Marsh. Don collected 1. Walked (or waded) out into the marsh to photograph the birds and take feeding observations. They were feeding on the small islands of ~~saturated~~ saturated ground coming through the water. [Specimen - SN 730]

Walked over to P's census plot - very quiet there. Photographed an owl, then watched a pair of plovers - probably not yet incubating. Drove back to road and let off Don and Tom, then went to Gasline Ridge to check butty and

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21 June

other activity there. there wasn't much - one buff breast and the occasional pectoral and red-back. Finally came in around midnight.

Magnificent weather this evening - warm and still. It was too nice to come in. About 11:30 the clouds came in.

22 June

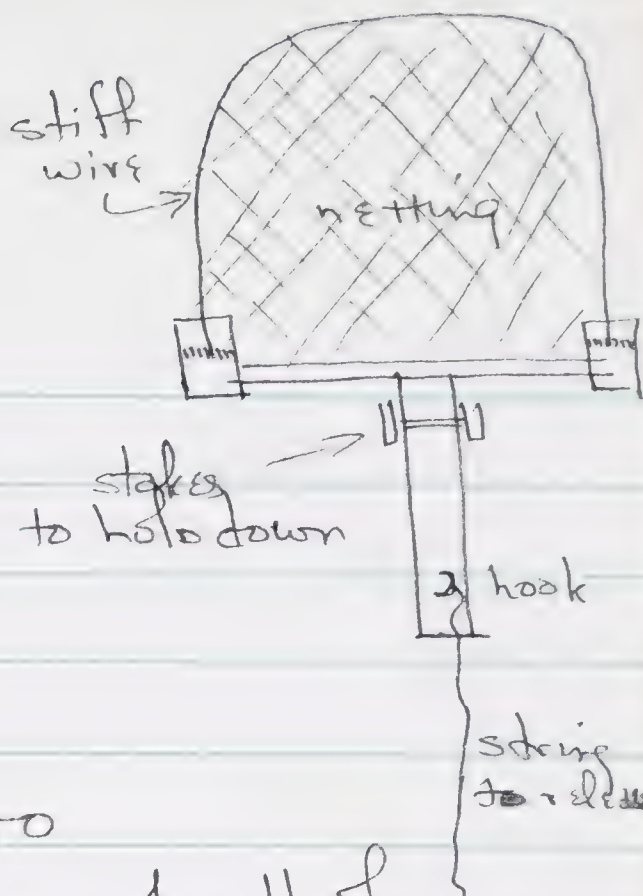
Barrow, Alaska


End of a brief, unfortunate chapter - Karl Tolonen departed today for Arizona. It was obvious that he wasn't doing us or himself much good, and he was making us uncomfortable. I think Dr. Pitelka acted rightly. Remained at the lab doing odd jobs in the morning until this was taken care of. Being useless in the afternoon, Tom, FAP, and I walked out into the Drum area to try to catch ♀ longspurs from the nest with the insect net. Failed at this, but caught and banded a semi-pal and a baird. Found a new baird nest. Weather turning rotten - it was now cold, windy, and snowing.

Returned to the lab and, with Tom and Don, constructed a bow trap activated by rat traps. took

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[22 June] this out to the Drum area in the evening to give it a try. Tom and Don tried to catch longspurs while FAP and I went off to photograph buffies. Shot 1 roll of Plus-X and a roll of high-speed ectochrome. Got - I think - 9000 shots of wing flashing and H  display. Then Don and I returned to the lab; Tom and I trapped and banded 9 longspurs and a baird sandpiper from the nests.

23 June

Barrow, Alaska

took off on foot through the Drum area and found a 4-egg baird nest. Walked up along the edge of Family Lagoon to Family Creek, then walked the area S and East of Family lagoon and creek. Very quiet. Most amazing are red-backs - they are widely scattered and covering immense areas. Watched a pair of plovers, but failed to find the nest. ♂ melanotos are still scattered about but also in flocks. ♀♀ are just not seen and we have not yet scored up a nest. Phalaropes -

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[23 June] both ♂♂ and ♀♀, are fairly abundant, but only 1 nest thus far. Checked the owl nest - still sitting on 4 eggs. With that - had to rush in for lunch. On the way, saw no sign of the tanglefoot site jaeger.

After lunch - drove out to traplines 3A-3B with Don and Tom. While Don took 300 samples I made a quick tour of the 10th Area sensu lato, with results about as this morning. A flock of ♂ pectorals came by, but disappeared after I returned for the shotgun. Drove Don back to the lab and exchanged him for Mary Shields - here to observe owls for Gessaman. Then drove back to Village Ridge. Owls are still numerous there - ca. 10 in sight at once - but no nesting. Birds were mostly in the lee of mounds trying to stay warm.

Checked the alpine nest - now 4 eggs. Found a 1-egg Golden Plover nest! On the ridge - no barn or semi-pal! Walked the area in a cold wind with occasional blowing snow, then returned to the vessel. Found Tom sitting in the back of the vessel - his enthusiasm is not

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[23 June]

yes complete! Drove back via road which parallels the ridge, heading toward FAA installation. Saw 2 turnstones (rare birds this year) and a baird busily feeding along the way.

Spent the evening in Barrow buying a licence (she paid for it!) and addressing more damn invitations. Finally finished those darn things.

24 June

Barrow, Alaska

Wrote notes, then went out into Drum Area with FAP and Tom to complete the map of the area. In a short time found a new semi-pal and golden plover nest as well as a baird nest next to a previously staked semi-pal nest.

In the afternoon Don and I glued up the Tanglefoot slats then headed out to place them. Took the owl girl (Mary Shields) out to the W. Beach Ridge Owl nest - she stood and 'ooo'ed in awe, then proceeded to stay and watch the nest until 8:00 P.M.

In setting the boards found that frost heaving has changed the ground contour so that boards fitting flat last year were not so now. Made the necessary alterations and carved numbers

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Journal

24 June]

in the stakes. Drove along Central Marsh road and found a flock of ca. 40 geese. Collected 4. Also collected a golden plover from a flock of 12. ^{Placed} ~~changed~~ the S. Beach Ridge traps, then returned to Beach Ridge crossing and stopped to activate Bohannon's pit-fall traps there. Found and turned 19 of the milk can type - the same as the drum area set. Finally returned for cocktail hour.

Set up a nest check system for the banded bird nests. If people keep the record we can get good data without the need of systematic nest checking. If not something else will have to be done.

In the evening went out in a cold wind and banded 3 more birds, making a total of 5 nests with 1 banded bird (out of a total of 3 nests). The net has worked without fail - 2 birds would not get on the nest, but once sitting, the bird is ours.

25 June

Barrow, Alaska

Spent the morning writing notes - there was a little catching up to do. Did a live mount of the Golden Plover collected yesterday, then spent all evening working

Maclean
1967

Journal

25 June]

on specimen material. After dinner walked our past banded Baird nests and checked traplines IX and X. Weather was again cold and foggy - not much activity.

26 June

Barrow, Alaska

Made a nest check before going to bed, and another first thing in the morning. Long incubation stanzas seem to be emerging, but not clearly 12 hours or some other simple pattern. Went out again to check traplines IX + X. Watched 2 Bairds feeding between the lines, then walked in along family Lagoon. Found a 4-egg semi-pal nest about at the latitude of AACs, and another in the Drum area close to camp.

Spoke w/ Brewer re. the problems of the owl girl. We decided to take a local survey flight to look for nests, then fly to Wainwright and back to look for concentrations of owls. Took off just after lunch. Looked for the Wohlslag Slough nest without success, then carefully searched around the gas well. Lots of owls, but no nests. Looked long enough to convince ourselves. About this time the owl girl asked where they keep the paper boxes on the air plane.

Nachean
1967

Journal

[26 June] She looks like she could use one, so Shepard put down on the Village Strip and we completed the trip to Wainwright and back without her. Absolutely zero owls between Barrow and Skull Cliff, then widely spaced birds to Wainwright. Flew down 1/2 mile inland and back ca. 2 km inland, and got the same impression both ways. Saw very few jaegers, occasional flocks of peectoral sandpipers, groups of caribou around Liz C, 1 Arctic Fox at the N. end of Pedro Bay.

Returned just before dinner. In the evening went into Barrow. Weather getting worse - cold and foggy, with snow between 11:00 and 12:00 which remained on the ground. After walking back to camp went out to check the Baird nests before quitting for the day.

27 June

Barrow, Alaska

Up in time to make morning check of the Baird nests. There is still more to be found in the Drum area. After lunch Dan and I went out toward the Micro-Med tanglefoot. Found the plover nest S. of the Drum area on AAC's polygons - 4 eggs. Again saw Bairds around

Maclean
1967

Journal

27 June

traplines IX & X. About 4-8 sm. ad. Diptera were removed from each tanglefoot board. We then walked to Family Lagoon and followed the lagoon toward Family Creek. Saw very little! Walked in via bird nests and found a 2-egg nest 40 m. S. of #5.

Again spent the evening in Barrow. Walked out toward Browerville Ridge, but didn't get too far because of falling snow. Returned around 2:00 A.M. and went out to Drum Area nests, took camera to photograph birds sitting in the snow - got some pictures of golden plover, but birds wouldn't sit tightly enough.

28 June

Barrow, Alaska

again up..... after breakfast. Checked bird nests - more activity and excess birds in the drum area. After lunch had to go into Town with Merle to cash a check and run errands. Weather now clear and cool, but fog came in around dinner time. In the evening drove out to collect some birds. Found a loose flock of golden plovers and collected 2. Also collected a semi-pal (from 3) and 2 phalaropes from a flock feeding on flooded grounds. Drove on toward S. end of Beach Ridge, but

Hachean
1967

Journal

[28 June] came in when snow started falling and spent the rest of the evening working on these specimens. Made a late check of the baird nests before bed.

29 June

Barrow, Alaska

Up for the baird check - found another new nest - the 4th of the complex around nest #5. Spent the rest of the morning writing notes.

Most of the afternoon was occupied putting netting on the emergence traps. These are simply wooden frames covered by netting - in the shape of a pyramid - to capture insects as they emerge from a known area of tundra. Ours are 1 m. square on the bottom. I suggested we get a pair of lay br maximum - minimum recording thermometers and place 1 inside and 1 outside of the traps to see how they alter the temperature of the micro-environment.

After dinner I was drafted (with little resistance) to play in the camp v. village softball game. Camp won - an accident. Returned for the latest check of the baird nests - finished about 4:00 A.M. The birds seem to be getting off of their nests sooner

Maclean
1967

Journal

[29 June] now - maybe our frequent checking has sensitized them. Nest #8 is particularly difficult.

30 June

Barrow, Alaska

Thawed it up for lunch. Afterwards I glued up tanglefoot while Don prepared doors on emergence traps. He wants to be able to open and close them to remove insects as will. Our vacuum cleaner, if we can make it work, would be good for this. Made cardboard shields for the two max-min thermometers, then loaded the whole mess on the wheel and took off for the Miller tanglefoot Area (I). Changed the boards and set 3 emergence traps there, then drove around to the South Beach Ridge site (II) and did the same. On the way removed 2 plovers from Central Marsh, and got 2 melanotos on the way back.

Weather was pleasant - bright sunshine, although thermometers read only 38°F. A large ad. Chironomus was found abundantly over the tundra, and the first adult tipulids appeared - a ♂ tipula on one of the (II) tanglefoots and a ♂ Prionocera found when Don

Maclean
1967

Journal

30 June]

and I checked the pit-fall traps
on the Beach Ridge Crossing on the
way in.

Went to Jimmy Stotts' wedding at
the Catholic Church in Barrow in the
evening.

July

Barrow, Alaska

Up late, in time for a quick run
out to the Baird Nests. Spent the
afternoon doing stomachs - the two
plovers were stuffed with Prionocera
larvae: more than 100 in the 2 stomachs.
Buff-breasts contained adult tipulids (inc.
eggs) and Chironomids. Pectorals are
still feeding on larvae. Afterwards,
to avoid going stir-crazy, walked out
into the Drum area to check Baird
NESTS. Also emptied Drum area pit-
fall traps - still not much - and
brought in excess cane to use in
establishing another pit-fall area on
the beach ridge. Weather still cool,
windy, foggy.

Spent the evening in town making
wedding arrangements and watching
Steve Hopson's house burn.

Maclean
1967

Journal

2 July

Barrow, Alaska

Spent much of the day in town for church and ballgame. Returned in the evening and counted tanglefoot slats while doing my laundry.

3 July

Barrow, Alaska

Up for breakfast! Went into drum area and discovered that shorebird nests are hatching. Baird nest #1 was empty, and both adults fussing nearby. Nest #12 is empty, but probably due to pre-emption. Returned to lab and picked up bands and Custer and went back out. Banded 3 young from Baird nest #1, 3 still in ~~nest~~ alpine nest nearby, 1 pusillus within a few feet of Baird nest #5. Then went over and banded 3 of Tan's longspurs. After that banded 1 bird (ad.) incubating nest (Baird) #11, then in for lunch.

Found that our ~~was~~ wino-net system is now complete - picked it up. As usual, ARL did 10x what was needed - a fancy brass and tool aluminum thing. As a result, we probably won't be able to get a second system. This one can be changed

Wachan
1967

Journal

slightly to double it's capacity - I'll save details until we have it operational.

Next glued up tanglefoots for today's change. Inspiration struck - decided to use beer-cans for additional pit fall array. Knocked the tops off of 10 cans to put near micro-met, then Dan and I headed for the field.

Maclean
1967

Journal

July

Barrow, Alaska

Back to work. talked with Dr. Ptelka about Don's decision to abandon the insect work as thesis material. Don will spend the rest of the summer working with me. With the shorebirds so low here I want to concentrate on the insects for the remainder of the season, so this won't offer much of a change for Don. I would like to address the questions of lifecycle and size distribution as well as spatial distribution this season. They ran some transects in my absence that definitely indicate sex ratios strongly divergent from 1:1 in all 3 species. These should be repeated. Long transects to sample habitat distribution should also be begun soon.

Took Edna to shorting station to get her sewing the nets for our aerial insect sampling system, then returned for lunch. Afterwards picked up nets (and Edna) and inserted tygon loops of 1 m. circumference into rim of nets. By the time we finished rain was pouring down again (it rained very hard about 6:00 A.M.) so we decided to count tanglefoot instead of installing nets. Accidentally started

Walsen
1967

Journal

counting one that Don has already done, but in doing so discovered differences in the way we have been scoring insects. Decided to divide diptera into the tipulid species, Nematoocerans (Chironomid-type flies), and Brachycerans (Muscid-type flies). This should allow easy and accurate counting, and I can adjust past data.

Home (how 'bout that!) for dinner, then Edna, Don, and I went out toward Central Marsh and Micro-Mer. took 3 golden Plovers from a flock which also included pectorals, red backs, and turnstones. Found another flock in Central Marsh and chased it over toward Pow Main. Collected 6, and a red-back from a group of 4 standing by watching the fun. Next took 16 soot cores from Central Marsh hoping to extract Pedicia larvae. Then to Micro-Mer wind net system and installed the nets. By jove, it works. A wind of about 12 knots was blowing and it was enough to turn the nets. The bottom doesn't turn too well - it gets most of the weight and the least wind. Some further modification is probably called for, but the basic

Maclean
1967

Journal

design will work. Don photographed the occasion, then we returned to put 300 cores in Berlese funnel, clean up the resultant mess, plan activities for the morrow, and so to bed.

15 July

Barrow, Alaska

Last night was cold and windy, with no adult insects conspicuous on the tundra surface. Today was calm and warm, and Tipulids were very abundant. Spent the morning counting and cleaning the tanglefoot boards, then Don, Tom, and I drove out toward site II.

Dropped Tom at trapline VII, and bags of traps at VIII, I, & VI. Changed tanglefoots II, then Don used vacuum motor to collect tipulids. He ran out of gas, and we both hand picked good numbers of Tipula and Pedicia to use in caloric determinations. The prompt emergence response to today's good weather was impressive.

Drove to site I - changed boards and removed a large amount of material (ca. 1/2 gallon) from pit-fall traps. Our wind net system is still intact - nets in place.

In the evening Drove out with Edna

Maclean
1967

Journal

and Don, intending to do tipulid transects. Saw a flock of birds on the N. side of the Beech Ridge which included golden Plovers, Red-backs, Pectorals, turnstones, and 1 Curlew Sandpiper! Chased the latter until the entire flock flew. took several feeding observations before losing them. Drove on, and found Pectorals abundant and feeding actively in Central Marsh. First group of 10 was feeding on weed seed. Another group of ca. 30 was pecking on undisturbed tundra; collected 5 of these with 2 shots. Tipulids were way down from the afternoon, so we decided to hope for warm weather tomorrow and do the transects then. Returned to give the pectorals their drink of formaldehyde, drove briefly to Shooting Station, then returned to write notes. Cool fog rolled in late, and wind shifted to the East - not a good sign for tipulid-transects weather tomorrow.

Encountered a red-back with 4 young juveniles in elevated part of Central Marsh and two broods of young semi-pals today. a/c's golden Plover is still incubating.

the tundra is quite a bit wetter after the recent rains. Standing water appears

Moore
1967

Journal

in many places.

16 July

Barrow, Alaska

Up late after a much-needed rest.

Weather was bad: fog and rain. No good for Tipulis transect, so drove out with Edna and Tom to try to trap plovers. Nest East of Aals was hatching - watched a bird crawl out of the egg. Left Tom there to try the disc-fall trap and drove to the nest on Pitelka's Plot to try the bow net. Set it and spent 20 minutes untangling the darn string, then drove to shooting station to pick up Beverly. Back to the nest - nothing, so brought the trap back. Found that Tom had left the trap set at the Aals nest and gone in. The adults had not gone on the nest, and 1 young was dead, another nearly so. Removed the trap and drove in. As long as we could see the adult did not get on the nest.

Next took mist net and several handware cloth strips with monofilament loops out to the nest South of Fda. Found the bird still incubating, and caught it with the mist net. Drove in and fed this and a ♀ pectoral that Tom caught in the trapline. Gave them ♂ Tipula

MacLean
1967

Journal

[16 July]

from the con traps.]

Cocktails at our bar with our crew, Ray Stosse, and Don Kangas before dinner at Vinnell. Fed the birds again. Too foggy for Wien tonight, so they will have to wait until tomorrow. Spent the rest of the evening writing notes and transcribing tanglefoot data taken by FAP and Don while I was away.

17 July

Barrow, Alaska

Weather improved in the morning and Don and I prepared to do Tipulid transects after lunch. Weather quickly went all to hell, and by the time we were out it was raining, with very few adult Tipulids to be seen.

Spent the morning working on specimen backlog. Preserved stomachs for later analysis. Kept 3 whole bodies of golden plovers for fat extraction - 1 was very fat. Went out promptly at 1300, and immediately had the Weddel track slide off the Drive wheel. Started on foot as rain began to fall. Walked across Beach Ridge, corner of Central Marsh, and onto Pitelka's Plot looking for Tipulids, and finding few - not enough to do the transect. Took feeding observations, then returned to the sick Weddel. Golden

Maclean
1967

Journal

Plovers near AACs were near nest cup, now empty, and greatly distracted but we could not find any young. took the gear from the vessel and walked in. collected a fusciollis and pusillus from ponds in the drum area on the way.

In the evening Don and I went out to trap plovers with the mist net. Found 1 juv. with the 2 AACs adults and used it to catch 1 of these. Next went to nest on P's Plot and caught the bird incubating there. Both birds were easy to catch. took 16 soil cores from wet tundra East of the road to Beach Ridge, then came in.

Again a mixed flock - this time more alpina than melanotos - along N. Beach Ridge. Couldn't get close enough to collect. With tipulids down due to weather, I would like to see what they are eating. I think there is still plenty of food. do. Brachycerans are abundant now.

18 July

Barrow, Alaska

Tanglefoot change day, with an entire SSR to count first. Weather was foggy but Wren managed to get in, so

Nachrean
1967

Journal

fed the plovers and sent them off to Fairbanks. Called Institute of Arctic Biology and learned that yesterday's birds arrived in good shape.

Spent the rest of the morning and early afternoon counting, cleaning, and preparing tanglefoot strips, then went out with Tom and Don. It was now very foggy - visibility not > 200 m. I spent some time introducing Tom to feeding observations while Don changed site I. Emptied the pit-fall cans and took down the wind net system to bring in the spacer pieces for modification, then drove on. Passed a flock of ca. 30 alpins near Micro-Met and another of ca. 30 melanotos on the Beach Ridge. Changed these boards. Numbers 3 and 4 were under water and had to be relocated on drier ground.

In the evening went to lab with Edna and sorted and counted haws and vacuum picked Tipulid samples and can-trap sample from today. Vacuum meter failed to pick up most Tipulids - especially wingless ♀ Tipula and Pedicia. Haws picked samples contained proportionately fewer ♀ Tipula than can-trap samples.

Hacken
1967

Journal

[18 July]

Collected 1 P.d. and 6 alpine in the afternoon to check stomach contents while I know tipulids are down. Until the work load goes down, however, I will pickle the stomachs for later analysis.

19 July

Barrow, Alaska

Spent most of the day counting the large tipulid sample collected in the can traps between 3 and 15 July. Interestingly -

tipula : 1600 ♂ : 425 ♀

Prionocera : 10 ♂ : 1 ♀

Pedicia : 474 ♂ : 130 ♀

i.e. - the sex ratio diverges most from 1 in tipula, not Pedicia. Also, this differs (I'll wager significantly) from the results for tipula 15-18 July.

After that wrote up descriptions of feeding observations - short form (see attached) and long-form - and gave them to Eona to type. Finished bottling and labelling tipulid samples, then drove to Birnie for duck soup dinner with the in-laws. Went back to lab later to freeze tipulid material and measure skulls, then home to write notes.

20 July

Barrow, Alaska

In the morning Don and I counted the tangle foots. Insects are way down from last time. Decided to

Maclean
1967

Journal

20 July

(finally) get moving on habitat transect work. Placed a 1 km. grid over a map of our study area - down to lower Gasline Ridge and Okpik Slough and West to Village Ridge and Village lagoon. This gives about 48 complete 1 km. lengths that can be used for transects. Decided to try procedure of randomly selecting a kilometer from the grid and walk along it evaluating the habitat (using the feeding observation scheme) at 5 m. intervals, giving 200 points per km. Mimed a data sheet for this and in the afternoon went out with FAP and Don to try it out on a 1 km. starting at North Meadow Lake and heading West toward mouth of Family Creek. After first 100 points ($\frac{1}{2}$ km) decided to reduce the number of sample points to 100 / km (One each 10 m.). Using this system we did the last $\frac{1}{2}$ km in just $< \frac{1}{2}$ hour. In general we all agreed well in categorizing the sites - encouraging for feeding observations. Don and I will begin tomorrow morning and try to complete at least 4 km/day for the next 6 days. We will have to

Nashua
1967

Journal

20 July

to it with an observer and a recorder.

Saw very few birds. A very young juvenile pectoral (?) near Micro-ther, apparently lost or deserted and giving distress calls - a ♀ Semi-pel harassing a passing long-tailed jaeger, a pair of parasitic jaegers in the distance, snowy at eating a glaucous gull.

Came to the lab in the evening to clean up specimens and other lab work in preparation for the big transect push beginning tomorrow.

21 July

Barrow, Alaska

Out for habitat transects while Tom checked trap lines. We walked together from Family Lagoon to point B3, and then from B3 to B2. Discovered that we could do it alone, so went from B2 to C2 while I walked around to Lake Ester area, followed Family Creek, and did C-3 to Family Lagoon to complete the B3-C3 km. Then Dan + I converged from C2 and C3 to complete the square - 4 km. done in a morning. Missed our meeting point on the last km. by 1 (one) meter - amazing.

Saw a flock of ca. 12 melanotos

MacLean
1967

Journal

21 July, J feeding on old weasel road by Faa and a ♀ melanotos near Family Lagoon that definitely has young. Flocks of alpine were common. Tam! took some feeding observations on alpine and Pl. Dominica. It will really help if he can get just a few observations each way. Morning judged successful. Especially good to know that 1 man can do habitat transects.

After lunch we counted, cleaned, and prepared tanglefoot, then loaded an impressive pile of equipment into the weasel. Got as far as aacs, where a bogey shifter snapped. Returned later with Frankie Alpi. Collected a vacuum sample for spiders and brachycerans while the weasel was repaired, then continued to tanglefoot I. Changed beacons, checked emergence traps, emptied can traps, and reassembled wino-net array in it's (hopefully) final form. It looks good.

Next move to tanglefoot II. Changed beacons, checked emergence traps, and began laying 25 new can traps in the form of a cross with arms of 6 cans each at 3 pace intervals. Finally took 18500 cores - E from undisturbed

Maclean
1967

Journal

[21 July]

marsh tundra and 8 from road in Central Marsh - for berlesse extraction. Returned about 6:30. Loused up my damn back removing crap from tracks of the weasel. took it easy writing notes and sleeping to try to let the back recover.

Much fewer birds in the area today. the conspicuous flocks of plovers and pectorals are not to be seen.

22 July

Barrow, Alaska

Spent the morning working in the lab waiting for Mr. & Mrs. John Boyd - directors to us by laboratory of zoophysiology, U. of A. He is a grad student with Schlason at Johns Hopkins, working on environmental physiology of penguins. They brought some Penguins up to the L. of J., and are now touring. took them to lunch, fed two captive red-backs, then took them to the field. weather - clear and windy, and few birds in the area. Dan and I did two km. habitat transects each in Holmes' Morass. Checked the plover nest on P's plot - now empty. Saw only a few plovers and red-backs in the Morass, and one small flock of

Hatched
1967

melanotos near the corner of Central
Marsh.

After dinner took the two red-backs
in to Wien. I called Dr. West in the
afternoon; he said that all the plovers
and the pectoral are in good shape, but
the red-back never ate and died soon
after arrival. I took the vessel out
to Duck Camp planning to do a transect,
but bridge to Holmes' Marsh has washed
out and we didn't want to drive
around, so we just visited with Alpeaks,
and then home to bed.

23 July

Barrow, Alaska

Up early (for Sunday) to do two
~~vegetation~~ habitat transects: N.E. Meadow
Lake to AACs, and East to near C.E.G.S.
Weather cool and windy. Drove in with
Eona, then back out with Don to do
2 more transects and collect 500
samples for Berlese extraction. Saw
a Baird w/ young in low, pond dominated
tundra between No. & So. Meadow Lakes;
red-back with young in low marsh N. of Gasline
Ridge.

After Dinner at Vinnell took Eona
to the movie, then went back to lab to
put 500 cores into Berlese funnels and

Maclean
1967

Journal

write notes.

24 July

Barrow, Alaska

Dr. Pitelka left for Berkeley on the morning flight. After his departure Dan, Tom, and I went out to the NE corner of Central Marsh. Dan and I did a habitat transect each while Tom looked for longspurs. Good weather, but few birds - a golden plover with two black-bellied plovers in the marsh, alpine with large juveniles in a drier part of the marsh - no large flocks.

Afternoon was a tangled day, with our usual weasel problems. Got out to aacs but returned because of sound of grinding bedrings. Next weasel made it from the shop to our lab, then wouldn't start. Finally made it in the thro - too late to do much but rush out and change the beavos. Spent the evening at home cursing at ARH.

25 July

Barrow, Alaska

Spent the entire day transecting in good weather. In the morning Dan and I went to Wohlslag Slough and area south. Some difficulty caused by lack of agreement between the map and the course of the slough, but nothing serious.

Maclean
1967

Journal

25 July

Tide came in while we were South of Wohlslag, raising the water to a dangerous level. Had to go West, around Central Marsh Creek, and in by Micro-Mer. Few birds in the Marsh; a few plovers and red-backs along the ridge N. of the fertilizer plot.

In the afternoon slashed through transects NE of So. Meadow Lake and Gasline Ridge. In the evening returned to that area with Edna to complete the transects there. Saw a small flock of melanotos - in ponds & boughs on Gasline Ridge; otherwise, all quiet.

26 July

Barrow, Alaska

More good weather to finish up the transects. Don and I are exhausted and coming down with colds, but the lines - 32 of them - are done. In the morning went to Holmes' Marsh. Lots of alpina and Pluvialis there - feeding along ridge and mesic tundra. In the afternoon - 3 transects in Central Marsh to finish up. Grabbed 16 soil cores from the Marsh, then collected 4 melanotos from a flock of about 30 feeding along the road. Spent the evening passing out bag food. 32 transect

Maclean
1967

Journal

26 July]

should be plenty.

27 July

Barrow, Alaska

Spent the morning the same place as the evening, then cleaning tanglefoots and blowing my nose. Went out for the tanglefoot change in the afternoon in a cold, persistent rain. There was little on the boards - the lot of the tipulids and some Brachycerans. Came in out of the rain as the cold hit full force. Spent the evening in bed!

28 July

Barrow, Alaska

Back to counting worms. Spent all morning with Don counting chironomid larvae from the past three berlese samples. The last one was loaded - but no tipulids. (Found 6 tipulids that Don missed in the last two samples.) I would like to take periodic samples to weigh to see how \overline{wt} increased.

Spent the afternoon putting up a snowy owl shot by Sedman, with Mary Shields acting as observer. In the evening played basket ball in town.

29 July

Barrow, Alaska

Counted more larvae from the latest two samples, then have picked several to determine effectiveness of

Maclean
1967

Journal

29 July] berlese extraction. It appears to be at least 85% - good enough if it holds for tipulids (Prionocera and Pesicia). In the afternoon went out into Holmes' Morass to look around, take feeding observations, etc. Saw a few golden plovers and a red-back with a flying immature; not much else. Went down to Central Marsh to take sed samples. a flock of pectorals and a few immature semi-pale there.

In the evening drove out to Shooting Station. Flock of 12 immature pusillus along the lagoon - ponds behind tents. Encouraging though - these are not too disturbed, and are much like the ponds in the Drum Area that are so heavily utilized in August. Picked up one of our banded semi-pale - # 75-26632 - that a boy shot from one of the ponds at Birnie. Returned to write notes, and then to bed.

30 July

Barrow, Alaska

Sunday morning in the rack, then to the lab to clean tanglerocks that Don just counted. Out for the change - found a burst of bird activity - pectorals, red-backs, plovers, and the ^{1st} Dewitcher

Mackenzie
1967

Journal

30 July

of the season. Took a good number of feeding observations, then changed the boards. Afterwards - found 2 puffins; took observations and photographs there, then drove on to site II and made the change there. Again - pectorals and semi-pale in the marsh; red-backs and plovers on the ridge. Still plenty of insect activity evident on the ridge, although the tanglefeet are still going down.

Spent the evening processing birds with Esna. Stomach collection is up to 50 now.

31 July

Barrow, Alaska

Spent the morning finishing up backlog of birds plus some red-backs that Tom brought in. After lunch drove to Shooting Station, then up spit toward Nuuk with Dan, Tom, and Don Kangas. Large flocks of Sabine gulls and Arctic terns have gathered along the spit. Got good (I hope) pictures of a Sabine gull and an immature kittiwake that, for some reason, refused to fly until actually touched (Donk. caught it by hand). Collected 1 kittiwake. Many jelly fish were washing through the breach in the spit. Kangas made a plankton haul there - caught

Maclean
1967

Journal

Sagitta, small jellyfish, many others.

Went out to Shooting Station in the evening. Flock of semi-pale is larger now - ca. 22 birds. Lots of Eiders flying - just beginning eclipse molt.

August

Barrow, Alaska

Spent the morning writing many letters, while Tom and Don lost a boggy on the vessel and walked in from Elson Lagoon. After lunch talked with UCB about getting Don out to see some of the other sites. He reacted well - we'll start with Don and Tom to Meade River, then probably Don and I to Umiat. Cape Thompson will be last on the tour, if it works out.

Went out to drum area pond with Don to collect large red chironomids and talk about the tundra tour, then returned to the lab to count. We collected 935 in about 15 minutes. The size distribution makes no sense - certainly no clear age classes. They appeared as large now as late last August. I'll have to repeat at about 1 week intervals.

Spent the evening in town getting waxed at basketball. We should have

Maclean
1967

Journal

stayed with softball!

2 August

Barrow, Alaska

Mutual back-scratching with Brewer - spent the morning touring Dr. Scholer of U.I.H. and Dr. Atkins of Yale University Neo School. Scholer was involved in the U.I.H. sponsorship of the recent meeting in Fairbanks - hence the special treatment. Typical bird-watchers. ~~Later~~ Warm day with South-wind, but few birds on the uplands. Plovers scattered; large flock of peewees in the marsh. Delivered the bird-watchers to Birnie after lunch to watch Eiders, and returned for tanglefoot change. Quick change at site ~~II~~, then to II where we tried vacuuming fixed areas for spiders, carabids, etc. Set some more con traps and took 8 300 cores by central marsh tanglefoot and emergence traps. 2 more from Beach Ridge cross up. Just beyond, track slipped off of drive wheel so we walked in.

Spent the evening helping my gas and passing gas, then walked over to Shooting Station. Several turnstones as well as semipalm and red-bills

Maclean
1967

Journal

there. Sabine Gulls are hunting all along the coast. The South wind finally blew the ice completely out - only islands now. The wind also brought Mosquitoes abundantly. Many other nematocerae were conspicuous. Saw a juvenile (but flying well) grey-cheeked thrush in the Drum area as we were walking in.

3 August

Barrow, Alaska

Don and Tom finally off for the Meade in the afternoon after being held up by dense fog all morning. Waited with them for a while, then went out to collect birds. Couldn't get close to darn plovers. Finally had to settle for 2 melospiza from flock by corner of Central Marsh - both ad ♀♀, SN 791 & 792. Spent part of afternoon trying to sleep off a rotten stomach, then went to lab and worked on birds and notes while laundry was washing.

In the evening nobody came to pick us up to go to town, so we drove out to Shooting Station. Saw in the tent and finally finished my darn notes! Lots of red-backs - a flock of about 30 -

Nackea
1967

Journal

plus ca. 20 semi-pale. Phalaropes are beginning to pile up - 40 to 50 of them spread out on all of the ponds.

The 500 samples taken last time (4 days ago) are still producing. This means many samples were discarded too soon. These have produced >30 *Tedidia* and 4 *Prionocera* larvae. The last batch produces no tipulids but many chironomids, in an area showing signs of old disturbance. May be mutual exclusion operating.

4 August

Barrow, Alaska

Put new batch of 500 cores in the funnels, then spend most of the morning hand picking the central marsh batch. Found 4 additional larvae - *berlesei*s extracted $\frac{16}{20}$, or 80%. Watched carefully for small larvae, but still found none. There may be an obligate diapause in the egg stage, so that this year's eggs have not yet hatched.

After lunch drove Charlie out to Shooting Station, then returned to write abstract for Alaska AAAS meeting. Joe began acting up worse than ever - spent the evening trying to clear out the damn gas.

Maclean
1967

Journal

5 August

Barrow, Alaska

Measured Pedicia from Berlese funnels - all about 14-17mm range, and a goodly number of them - then began counting tanglefoot boards. Interrupted to pour out a letter to Pitelka, then finished counting and cleaning after lunch. Went out with Edna and Bobby. Found flock of ca. 40 pusillus, 10 melanotos, and 10 alpina - all feeding around ponds East of road, by reefer row. Collected wildly: 5 pusillus, 2 melanotos, 2 alpina - and took feeding observations, then drove on to Tanglefoot I. Made change, then went after feeding flock of ca. 18 alpina and 4 Pl. dominica. took obs, then collected 2 alpina and 1 plover. Drove around to site II; large flock of ca. 80 semi-pale was strung out along the vessel road. all in all, the place is full of semi-pale!

Changed tanglefoot II boards, then drove to Shooting Station for caribou dinner. Returned and spoke with Brewer, then spent the evening in the lab washing a yellow-billed loon picked up at shooting station and cutting

Maclean
1967

Journal

up shorebirds collected today.

6 August

Barrow to Umiak, Alaska

Spent the morning counting yesterday's tanglefoot boards, with Don helping. We are still getting the small tipulid-like beast, but no more of the 3 major tipulid species. Biomass is conspicuously down.

After lunch Don and I were rushed out to the airport for a flight to Umiak, then stood around and waited for a wheel to be changed on the plane. Finally took off with Joe Felber flying and Dr. Kobayashi (Japanese mycologist) as 4th person in the plane. Flew quite high - as is usual with Felber - so we couldn't see much.

Landed at Umiak to find Clayton White and Dr. Spofford - of Tom Coo's river-cruising falcon watchers - there. Don and I went immediately into willow scrub east of runway - saw and heard many willow warblers

Maclean
1967

Journal

9 August

Barrow, Alaska

Back to work and Barrow weather - heavy snow early, then alternate snow and light rain most of the day. It cleared up in the late afternoon, and the evening was clear and cold ($32^{\circ} \pm$).

Cleaned the lab of pre- and post-Uniwer messes, then spoke with Brewer re. Cape Thompson. Don is on for a second flight today, with Tom along as ballast. It is a bit frustrating to arrange these good trips for Tom without his putting out as all in return (which he absolutely has not!) - but such is life.

In the afternoon had to rewrite the abstract for my Alaska AAS talk, since I can't find the one I wrote earlier, darnit. Then drove over to shooting station to check things there and pick up Merle's gas cans to fill for a trip to the Point this evening.

Neither the trip to Thompson nor to the Point materialized. Bad weather at Thompson, seal hunting at Barrow. Drove over to Shooting Station with Edna & Warren Fox - an engineer here to look at how ducks appear as radar images. Let off passengers, then headed for Holmes'

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Journal

[9 August]

Marass. Found a flock of >100 alpins feeding around coastal ponds; ca. 30 pusillus and 5 turnstones there also, w/ ca. 50 phalaropes - almost all immature.

Drove to polygon area S. of Shooting Station and took 8 SOB cores from polygon trough system, then drove to Central Marsh for 8 more. Cold on the lanes! Flock of ca. 25 pusillus on weasel road - otherwise, all birds were coastal. Saw no pectorals, but didn't look too far into the Marsh. Similarly, no plovers, although Maria reported a flock of them by the bridge near Birmirk.

Saw a red fox right near Tow Main. It wasn't at all impressed by the weasel - just slowly loped away.

Returned to the tent and warmed up, then returned to get SOB samples in funnel (one big Prionocera right away from the Marsh), then home to write notes until bed, late.

10 August

Barrow, Alaska

3 now in the morning again. Finished up notes and copied feeding observations, then measured larvae from berleses: 7 P. hannah from the troughs; 4 P. hannah and 4 Prionocera (big ones) from the marsh.

Maclean
1967

Journal

No little Prionace yet - there is still the possibility that the little ones we are getting hatch out in the funnels with the sudden heat shock (nearly 40°F. at least - to room temperature).

Autopsies alpine killed yesterday, then waited for ferry truck to leave for the Point in the ARCT LST Liz Maru. Finally departed about 3:00 P.M. Watched for guillemots on the way up, but saw only old squaws, a few eiders, and Sabine and glaucous gulls. Landed at the point and hurried to check drums for possible guillemot nest. First drum checked has fox tracks and remains of a recently eaten Arctic tern. One other drum has an empty snow-bunting nest, but no guillemots. Drums were surrounded by both fox and human tracks - too much disturbance, I fear.

Lots of Phalaropes - 25th immatures: 1 adult - along the coastline. Nunuk funna has a few semi-pals along coastal-type ponds and 1 snowy owl!

Returned quickly for dinner. Spent the evening at our hut with Dr. Stross, Don Kangas, and Don Brauer discussing major problems of the work over a

Marchen
1967

Journal

10 August I case of beer. Steve and I decided to look at the possibility of using hospital records from native service hospitals at increasing latitudes to see if periodicity of human births increases with increasing magnitude of photoperiodic change. Just in Alaska we could use Mt. Edgecumbe, Bethel, and Barrow, with maybe some Indian hospitals from the South 48 thrown in.

11 August

Barrow, Alaska

Up early, under protest. Measured 7 more Pedicia larvae from Bartlett's - then B.S.'s with Don Beaver until his departure for the South '48. Wrote more notes to bring species account up to date. In fact, I am even caught up with copying feeding observations! Next prepared tackle for boards for afternoon change, and after lunch went out to do so. About 30 alpina and 40 pusillus by reefer row ponds. Collected 1 alpina - SN 809. Almost no shorebirds beyond. Central Marsh was empty. Heard 2 melanotos fly over - no other pectorals. Saw 2 alpina, and finally a flock of ca. 18 pusillus on the weasel road. No plovers or dowitchers seen or heard.

Changed boards at site I and brought

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Journal

11 August

in emergence traps. Although thermometers inside \nearrow and ours did not show differences, the vegetation was definitely taller and greener inside the traps. Went on to site II; changed the boards and emptied the can traps, then set 12 more cans to complete the X and bring the total to 25. Cans emptied contained 19 tenthredinid larvae: 10, 8, 9, 11, 11, 19, 14, 15, 9 mm. Picked up the emergence traps there, as well.

Dropped them on the way in, breaking 2. No matter - they should be modified to make them easier to check, anyway. Drove in as snow was flying. Temperature never rose much above 35° all day.

Spent the evening in town playing basketball. We finally won - barely - over the 9th graders!

12 August

Barrow, Alaska

Counted material under beetle's funnel, then devoted some thoughts to quantitative insect sampling next year. Came up with two reasonable ideas:

1 - To relate the tanglefoots to actual numbers - change the boards some afternoon and then, at 3 hour intervals for 24 hours, run tipulid transects. After 24 hours collect and

MacLean
1967

Journal

[12 August] count the tanglefoot beavers. If we use established transects with the habitat already characterized we can do enough to get a good idea of actual tipulis density. Repeat several times, hopefully, at low, intermediate, and high tipulis densities.

2 - Use Emergence traps as enclosures. Have more built - and place 1/2 out as soon as desired areas are free of snow, then the remaining 1/2 in comparable locations on the day that the first adult tipulis is seen. The difference between the two sets should represent larvae saved from predation by exclusion of shorebirds. (But only if larval competition is not limiting. If two sets \rightarrow = numbers, we must conclude that shorebirds are not influencing number of adult insects which emerge.) It's worth a try.

Next processed yesterday's bird kill, then drove out to Shooting Station to think about sampling larvae in coastal ponds. Pond margins consist of about 1 to 4 cm. of organic muck lying over gravel. Larvae are confined

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[2 August] to the muck. Collected ~~2~~ ~~some~~ cores to try several extraction techniques. Saw and collected an immature Stilt Sandpiper from one of these ponds, as well as 1 alpinus and 1 pusilla. Ponds has many phalaropes, fewer pusilla, still fewer alpinus and A. interpres. Went to Dr W. Smith's for crab and spaghetti dinner, but left party early to go to lab. Processed today's specimens, then went out to collect soil samples of mesic tundra for berlese extraction. For the first time this year tundra has a frozen surface which cracks under foot. Took 8 cores from area west of Micro Mes, 8 from Beach Ridge, North slope, East of Micro Mes. Returned, placed these into funnels, then home to bed.

3 August

Barrow, Alaska

Spent the morning and early afternoon hand-picking all 16 blasted soil cores from last polygon trough and central marsh collection. Trough sample berleses removed $\frac{3}{14}$, or 93%. Not so good in the marsh: $\frac{1}{14}$ Pedicia over 10 mm, or 75%. Still acceptable, we think.

Next tried hand picking, washing,

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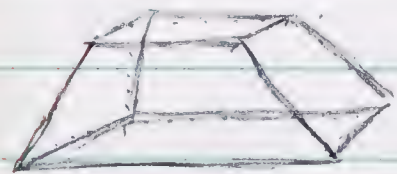
13 August

filtering, etc. mud sample from Shooting Station. Nothing seemed to work, so I hand-picked one of the mesic sod samples with kalu (1 Periclis). Then placed a pond margin sample in the vacated tunnel. Home for dinner and the movie with Bobby and kalu, then wrote notes and a letter.

14 August

Barrow, Alaska

Ordered 10 new emergence traps to make a total of 16 - 8 pairs. Changed the design to make them easier to check - they will be truncate pyramids - a 36" square bottom frame (to make them comparable to the old ones) and an 18" square top frame, connected by 20" pieces at the corners.



Netting will be firmly attached to all sides, removable at the top for checking and removing insects.

Removed and measured larvae from berlé'ses. The mesic tundra samples are producing mostly Periclis - only 1 large Tipula.

After lunch went out with Tom and walked over T's Plot and Holmes' Morass while he set traplines III & VIII. Saw

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[14 August]

many phalaropes and only 1 immature alpina in the Morass, then found a flock of 45 alpina, mostly adult but w/ about 8 immatures, feeding in pond at mouth of Jewell's Wier, with another 10 or so up on tundra to the NE. Birds in the pond (which is disturbed) were feeding more actively than birds on tundra. Returned to the marsh for the shot gun. When I returned to the area only ca. 18 birds were feeding in the pond - the others had moved on to the tundra. Collected 5 (see sp. accounts). Also collected some phalaropes for Don Kangas, then returned to the lab.

Tom Cope and John Haugh have returned from Ocean Point on the Coleville. Put up Stilt Sandpiper, then B.S.'s with them over in the Vinnell coffee shop. On the way back to the lab saw that Clayton White, Gordon Maclean, and the Spoffords have returned from Umiar. Spoke with them, then drank a beer and discussed the meaning of "community" with Ray Stross until the late hours.

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15 August

Barrow, Alaska

Slept in, then to the lab to discover that the flood in Fairbanks has reached the airport, so no flights out for a while. Case's people have our back lab in a mess. Advised that by counting tanglefoots, then went inland with Maclean, 2 Spoffords, & John Haugh. Pectorals, which were non-existent yesterday, were common today. (Not just here - Tom saw them in Central Marsh.)

Dowitchers were also seen. Drove to Ikroavik to see about Holmes' claim of adult alpine inland-tipula feeding v. juv. alpine coastal-chironomid feeding separation. Did see alpine inland - 1 flock of 20 feeding on low polygon area, & there at pond edges, but I still think Holmes overstated the separation. Lots of phalaropes; no jaegers or owls. I was struck by the amount of green remaining in the tundra as we enter the last half of August.

Walked into town after dinner to play basketball, then returned and drove out to shooting station with Gordon Maclean. It proved to be too dark

Maclean
1967

Journal

15 August]

to see ducks well, but we had an interesting discussion concerning apertures while we watched. Went in for tea and cake, then returned ca. midnight.

16 August

Barrow, Alaska

Spent the morning working on specimens and notes and talking with the River crew. After lunch skinned a Gavia adamsii picked up at Duck camp, then went out for soil samples with Clayton and Gordon. Weather was around freezing, with a strong east wind. Took 8 cores from Beach Ridge just west of gasline road, 8 more from Voth Area. N and W of crossing of Family Creek. Drove across the creek to look for birds. Saw a few dowitchers, scattered pectorals, and a flock of ca. 30 alpine. Collected 1 melanotos and 1 alpine. Also saw a few pusilla feeding in bare troughs. Returned - put soil samples in cores - then spent the evening drinking beer, eating dinner, and conversing with Clayton and Gordon. My wife's comment: "How can some guys be so engrossed by birds ?!".

Naches
1967

Journal

17 August

Barrow, Alaska

A sudden peculiar switch in the weather - the temperature went above 60°F. today! with mild winds. We worked in short sleeves.

Spent the morning finishing up the lion and yesterday's specimens. Just after lunch the Wien finally got a plane out of Fairbanks, and the Coe crew departed en masse, leaving our lab looking not unlike Fairbanks after their disaster. Counted and cleaned the remaining tanglefoot, then went out with Tom. Changed Tanglefoot I, dropped him at lines VII & VIII for to pick these up, changed site II, then walked to large enclosure at North end of P's Plot to repair that (as requested in a letter from P.) And that was the afternoon.

Home for dinner, then lay down for a while. Woke up at 4:30 AM.

18 August

Barrow, Alaska

Got up early! Tom took the vessel out to check traps, so I spent the morning cleaning up the mess in the lab and writing notes to get caught up again. Then picked 8 of the mesic tundra soil samples from Berlese funnels. Found a

Maclean
1967

Journal

[18 August]

great big live Tipula larva - so the berlese method won't work on mesic soil.
No Pedicia, tho.

After lunch went out with Tom to Voth Area to look at birds while he set traps # A-B. More unusually warm weather in the morning, but it quickly clouded up and rained quite hard. Many birds - a flock of ca. 35 alpine near the lines, plovers scattered about, several groups of dowitchers and pectorals, and still many longspurs. Collected 2 alpine, 1 melanotos, 1 P.d., and a series of feeding observations before the rain really hit. Helped Tom set out the lines, then came in and processed the birds.

took a big wooden box to the hut and began setting and packing our things in the evening as the weather improved again.

[19 August]

Barrow, Alaska

More packing in the morning. After an early lunch started walking inland to Micro-Mes, then Gasline Ridge, then Village Ridge, then Browerville Ridge to Browerville. I think I saw more birds today than any day this year. Many alpine, plovers, and dowitchers; pectorals were frequent; a flock of pusilla by a pond in the

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19 August

Drum area; and still longspurs. (I'm hoping
Tam saw longspur stomachs from the
3rd run of the trapline to see what they
are getting... if I can find the time to
look at them.) Saw 1 flock of only
immature alpine, supporting Holmes. Many
of the birds, especially plovers, were
feeding on upland tundra. Dowitchers were
all in mossy pond bottoms.

Went shopping in town for fur for
our new jackets, then caught a ride
back to camp. Spent evening writing notes
and visiting with Emily and John Hutchinson.

20 August

Barrow, Alaska

Warm, but foggy today. In the
morning took a live alpine out into the
drum area and placed him in an
emergence trap as a holding cage. Maybe
he can do some of his own feeding.
Processed birds from the traplines, ordered
a carrying box for Tam to use in
taking tissue material to Berkeley, then
cleaned the lab and wrote notes. Rain
began to fall so we delayed going out to
bring in lines I & II. I packed up 3 boxes
of books and measured 5 small tipula
larvae from the Berlées. Again—these
were a few mm larger than those that

Maclean
1967

Journal

[20 August] came out early in the run; they may be growing rapidly under the sudden increase in temperature before falling out.

Counted our shotgun shells - we're nearly out of small stuff, and went home for late lunch, followed immediately by early dinner at Feloers. Joe is just back from Fairbanks - reports that things are still a mess there - boats in downtown area. The Science conference will almost surely be cancelled or moved.

Took Ewa out to FAA area and walked pond-studded area S. of South Salt Lagoon. Still many birds - Dowitchers abundant, but hard to approach. Finally took 1 from a flock flying by; melanotos abundant; phalaropes very thick; plenty of alpins and Phalaris. Also took 2 pectorals and an immature Dunlin. Came in when it began to be too dark to see - early, and foggy evening as tonight. Drove to Birkenick to drop off Ewa, then to lab to check on live birds and weigh tonight's kill. Home for watermelon and field notes.

Maclean
1976 7

Journal

21 August

Barrow, Alaska

Early start to process yesterday's birds, then drove out to lines III A-B & IV A-B with Tom. Still many birds in the area - plovers on dry ground, pectorals and dowitchers in ponds, alpine in both. Drove in and spent the rest of the morning house sorting 500 samples, processing a trapline P.d., and misc. odd jobs.

After lunch took the weasel out toward P's plot. a flock of 12 Dowitchers and a few pusilla in ponds South of Smik pub. P.d. and a flock of ad. + immature alpine on dry ground of Beach Ridge. Dowitchers and pectorals in Holmes' Moccas and flying over Central Marsh. Walked out into the marsh - found about 1 pectoral / acre, fewer Dowitchers. Pectorals were very active, probably preparing to get the flock out of here. Seem to be more owls in the area again. That's all.

Returned to lab and processed 2 Dowitchers collected this afternoon, then home for dinner and an evening of relaxing and writing notes - the never-ending task.

Weather overcast and foggy but

Maclean
1967

Journal

again warm. It seems that birds have been piling up with the warm weather. The sudden onset of cold weather may cause a mass exodus and the end of the season.

22 August

Barrow, Alaska

And then there was one. Tom Custer finished the third run of the lemming traplines (very few animals caught) and departed for California tonight. He took with him the frozen tissue samples that we have been saving for the Wilson biochemical taxonomy study.

Spent the morning in the lab, since Tom needed the vessel to bring in traps. He didn't get up until 10:30, and then just sat around! Worked on notes, hand-picking soot... went to hand-feed my alpine and found chironomid larvae on his bill.

After lunch drove our Gaswell Road to take soot samples and see what was in the area. Watched a flock of ca. 30 snow buntings go by. Much interaction amongst the birds. They worked along the ground - birds moving 50-100 m. and jump.

Took 8 cores from low-polygon troughs on either side of the road near

Macdon
1967

Journal

[22 August]

Beach Ridge, then drove on to traplines
III-A-B. to take pond-edge samples. A very
thick ground fog suddenly dissipates,
leaving a warm, clear day. Spent the
rest of the afternoon in shirt sleeves. And
an amazing afternoon it was. Birds at
tremendous densities - plovers and redpolls
feeding on upland and low-polygons,
lots of dowitchers and some pectorals around
ponds. Collected 29 feeding observations
in just over 2 hours. The warm weather
brought many adult insects out. Collected
some alpine to see if they might be
taking these. Also collected a dowitcher
and a plover. Had to come in to process
specimens and freeze tissue before Tom's
departure.

Had a beer prior to in Stress' lab,
then home for dinner late, and notes
before bed.

23 August

Barrow, Alaska
Warm again.

Machean
1967

Journal

25 August

Barrow, Alaska

Another day working at the zoo. In the morning drove out to the area near Jewelllyn's voth area set up - South of Family Lagoon creek and east of the gasoline road - in elevated, dry tundra. Hans sorted 5 zoo samples on the spot: (f - w - 3/2 - A) - #1 - removed 1 large tipula larva and 1 Pedicia - 12mm. Found nothing in the next four cores. took 5 more to put in Berlese's for comparison. Drove in - saw a small flock (ca. 10) melospiza in very tall grass W. of road, in ponds created by the road. Collected 1 of these.

After lunch returned to the voth area and continued on to the gasoline just west of Gasline Ridge. took 8 samples, then wandered up to the top of gasline ridge to sample and hand-sort there. In the first sample (f - d - 2/1 - A - 3/3) found 3 tipula larvae - all 20mm. Found only 1 other larva in the next 7 samples - all carefully hand-sorted.

In the evening hand-sorted the 8 samples taken from lp tundra by the gasoline and found not a thing!

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Journal

Discouraged, went into town to play basketball.
Max Discouraged, came home to write
notes and go to bed.

26 August

Barrow, Alaska

Max introduced me to John Terrow (soils -
Rutgers) and his associate - Dr.

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Journal

29 August

University of Alaska, College, Alaska

Up for a refugee soup-line breakfast at the Univ. Commons, then walked up to the Institute of Arctic Biology building. Spoke with Dr. West about the conference and things I want to do in his lab, then went to work. I want to do:

- 1 - fat extractions on birds
- 2 - Dry and weigh tipulid larvae separated by size classes to generate a length-weight regression.
- 3 - fatty acid comparisons of birds (just 1 plover and 1 pectoral with large fat pads on pectoral muscle) with prey species. This will require extraction of prey as well - all 3 sp. of larvae and Tipula and Pedicia adults. In order to do this the prey must be freeze-dried rather than oven-dried. Martha Meng is still working as Dr. West's technician and will assist in this.
4. Dry and weigh other insects.

Started by spending the morning, with Edna, plucking 2 yellow plovers. For 1 of these air up and into the oven (S11753). [0.8690 g.] took a little subcutaneous fat* from the other (S11751) and began preparation for

Machin
1967

Journal

25 August] chromatography of fatty acids, which will
done tomorrow.

Registered for the conference, then
walked down to College Inn grocery store
for some food. Returned for a nap, then up
to the lab to separate and count the
tipulis larvae and prepare them for the
drier. Cut up the other plover and put
it into the oven, then quit to go to bed.

Just for laughs, we weighed the feathers
removed from the Plovers. 811 51 - 13.75g;
811 753 : 11.83g.

After dinner at the commons went to
the opening session of the Conference -
late enough to miss the speeches, but
in time to see Dr. W. Sladen's
(John's Hopkins Univ.) films of Adelie
Penguins.

S. MacLean

1967

feeding observation tables

Maclean
1967

Feeding Observations

5 June

Beach Ridge

001	♂a	13	f-w- $\frac{2}{10}$ -A- $\frac{7}{10}$ -Co	jab; singly
002	♀a	14	m-w- $\frac{1}{1}$ -A- $\frac{2}{10}$ -Co	jab singly. visual
003	♀a	14	m-w- $\frac{1}{1}$ -A- $\frac{2}{10}$ -Co	occ. jab. visual
004	♀a	14	m-w- $\frac{2}{11}$ -A- $\frac{7}{10}$ -Co	
005	♂a	14	m-d- $\frac{1}{1}$ -A- $\frac{2}{10}$ -Co	jab
006	♂a	14	m-w- $\frac{2}{10}$ -A- $\frac{3}{10}$ -Co	pick
			m-sat- $\frac{2}{10}$ -A- $\frac{3}{10}$ -Co	
			f-w- $\frac{2}{10}$ -A- $\frac{3}{10}$ -Co	jab
			along snow edge.	

007	a	14	f-w- $\frac{1}{2}$ -A- $\frac{2}{10}$ -Co	jab
008	a	14	m-w- $\frac{2}{10}$ -A- $\frac{3}{10}$ -Co	jab
			along snow edge.	

009	a	14	m-w- $\frac{2}{11}$ -A- $\frac{3}{10}$ -Co	
010	a	14	f-w- $\frac{3}{10}$ -A- $\frac{3}{10}$ -Co	jab
011	♂a	15	f-w- $\frac{2}{11}$ -A- $\frac{2}{10}$ -Co	

7 June

Nuvuk

012	m	11	f-sat- $\frac{3}{10}$ -A- $\frac{3}{10}$ -Co	active
			jab. flock of 4.	
013	b	11	f-sat- $\frac{2}{10}$ -A- $\frac{2}{10}$ -Co	
014	m	11	f-sw- $\frac{2}{10}$ -A- $\frac{2}{10}$ -Co	
015	b	11	f-sw- $\frac{2}{10}$ -A- $\frac{2}{10}$ -Co	
016	C. alba	12	pe-gu- $\frac{2}{10}$ -A- $\frac{2}{10}$ -Co	jab-visual
017	♂m	12	f-sw- $\frac{3}{10}$ -A- $\frac{2}{10}$ -Co	
018	C. alba	12	f-sw- $\frac{2}{10}$ -A- $\frac{2}{10}$ -Co	jab

8 June

W. Beach Ridge

019	♀m	14	f-w- $\frac{2}{10}$ -A- $\frac{2}{10}$ -Co	jab singly
020	♂m	14	ch-sat- $\frac{2}{11}$ -A- $\frac{3}{10}$ -Co	

Maclean
1967

Feeding Observations

2.

[8 June]

021	m	16	f-sat - $\frac{3}{10}$ -A - $\frac{3}{10}$ -Co	
022	m	16	f-sat - $\frac{1}{10}$ -A - $\frac{1}{10}$ -Co	
023	♀ m	16	f-sat - $\frac{3}{10}$ -A - $\frac{1}{10}$ -Co	probe collection
024	♀ m	16	m-sat - $\frac{1}{10}$ -A - $\frac{3}{10}$ -Co	collected
025	Calba	16	m-sat - $\frac{3}{10}$ -A - $\frac{2}{10}$ -Co	collected

9 June

Beach Ridge

026	♀ m	10	m-w - $\frac{1}{1}$ -A - $\frac{3}{10}$ -Co	jab
027	♀ m	10	f-sat - $\frac{1}{1}$ -A - $\frac{2}{10}$ -Co	jab
028	♂ m	10	f-sat - $\frac{3}{1}$ -A - $\frac{0}{10}$ -Co	jab

removed tipulid larva.

029	♂ m	10	f-w - $\frac{2}{10}$ -A - $\frac{3}{10}$ -Co	jab
030	♀ m	10	f-sat - $\frac{3}{1}$ -A - $\frac{2}{10}$ -Co	
031	♂ a	10	f-w - $\frac{3}{10}$ -A - $\frac{2}{10}$ -C	jab along

snow edge.

032	♂ m	10	f-w - $\frac{4}{10}$ -A - $\frac{3}{10}$ -Co	jab along recently exposed ground.
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033	P.d.	10	f-w - $\frac{4}{1}$ -A - $\frac{3}{10}$ -Co	
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034	♂ m	10	f-w - $\frac{1}{2}$ -A - $\frac{3}{10}$ -Co	jab near snow line. Ate tipulid larva.
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035	♀ m	10	f-sat - $\frac{3}{10}$ -A - $\frac{3}{10}$ -Co	jab along
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snow edge.

036	♂ m	10	f-w - $\frac{4}{10}$ -A - $\frac{3}{10}$ -Co	jab. along snow edge. (ground frozen at 1 cm).
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037	♀ a	11	m-w - $\frac{1}{1}$ -A - $\frac{3}{10}$ -Co	jab
-----	-----	----	---	-----

f-w - $\frac{1}{10}$ -A - $\frac{1}{10}$ -Co

038	♂ a	11	rp-d - $\frac{2}{10}$ -A - $\frac{1}{10}$ -Co	
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Maclean
1967

Feeding Observations

[9 June] 039 ♀ a 11 rp-d - 1/0-A - 1/0-Co jab

Drum Area

040 p 15 po-pw - 2/0-B - 2/0-Co
041 p 15 pe pw - 1/0-B - 4/1-Co
042 p 15 pe-sat - 2/0-B - 3/0-Co jab
043 p 16 pe-sat - 1/0-A - 1/0-Co jab

10 June Voth Area

044 ♂ PF 15 pe-sw - 2/0-A - 4/0-Co peck
pe-pw - 1/0-A - 3/0-Co psch
045 ♀ PF 15 pe-pw - 2/0-A - 4/0-Co peck
046 ♂ PF 15 po-pw - 2/0-A - 3/0-Co
047 PF 15 po-pw - 2/0-A - 3/0-Co
048 ♂ m 15 lp-sat - 3/0-A - 4/0-Co probe
049 PF 15 po-pw - 1/0-A - 2/0-Co
050 ♂ m 16 pe-sw - 3/0-A - 5/1-Co
051 p 16 pe-sw - 3/0-A - 4/0-Co peck
052 ♂ m 16 pe-sat - 2/0-A - 3/0-Co jab
053 a 16 lp-sat - 3/0-A - 4/0-Co
054 PF 16 po-pw - 1/0 - 9/0-Co
055 a 16 lp-sat - 3/0-A - 4/0-Co jab
056 ♂ PF 16 pe-pw - 2/0-A - 3/0-Co peck

12 June Voth Area

057 ♀ m 14 lp-sat - 2/0-A - 3/0-Co jab
lp-sat - 4/0-A - 4/0-Co jab

Rapid Series

058 ♀ m 14 lp-w - 4/0-A - 2/0-Co jab
lp-w - 2/0-A - 3/0-Co jab
rp-w - 3/0-A - 2/0-Co jab

Maclean
1967

Feeding Observations

[12 June]		059	♂ m	15	lp - w - $\frac{4}{10}$ - A - $\frac{3}{10}$ - Co	jab
		060	♀ m	15	lp - w - $\frac{1}{10}$ - A - $\frac{3}{10}$ - Co	jab
					along snow edge.	
		061	Pd	15	rp - w - $\frac{3}{10}$ - A - $\frac{3}{10}$ - Co	
		062	♂ m	15	lp - w - $\frac{2}{10}$ - A - $\frac{3}{10}$ - Co	jab.
					successful.	
		063	♂ m	15	lp - w - $\frac{2}{10}$ - A - $\frac{2}{10}$ - Co	
					along snow edge	
		064	♂ m	15	tr - w - $\frac{3}{10}$ - A - $\frac{3}{10}$ - Co	
		065	♂ a	15	lp - w - $\frac{2}{10}$ - A - $\frac{2}{10}$ - Co	jab
13 June		Micro-Met Marsh				
		066	Pd	11	f - w - $\frac{3}{10}$ - A - $\frac{3}{10}$ - Co	
					just exposed	
		067	Pd	11	f - w - $\frac{3}{10}$ - A - $\frac{2}{10}$ - Co	
		So. Beach Ridge				
		068	ai	14	m - w - $\frac{3}{10}$ - A - $\frac{3}{10}$ - Co	
					cl - w - $\frac{3}{10}$ - A - $\frac{3}{10}$ - Co	
		069	♀ a	14	lp - w - $\frac{3}{10}$ - A - $\frac{2}{10}$ - Co	jab
		070	♂ m	14	lp - w - $\frac{3}{10}$ - A - $\frac{1}{10}$ - Co	jab
		071	♂ a	15	lp - w - $\frac{1}{10}$ - A - $\frac{2}{10}$ - Co	jab
					pe - sw - $\frac{3}{10}$ - A - $\frac{1}{10}$ - Co	
					lp - sat - $\frac{1}{10}$ - A - $\frac{1}{10}$ - Co	
					lp - w - $\frac{2}{10}$ - A - $\frac{1}{10}$ - Co	jab
		072	♀ m	15	f - sw - $\frac{2}{10}$ - A - $\frac{3}{10}$ - Co	jab
					f - sat - $\frac{3}{10}$ - A - $\frac{5}{10}$ - Co	jab
		073	♀ Pf.	15	f - sw - $\frac{1}{10}$ - A - $\frac{3}{10}$ - Co	jab
					into water	

Maclean
1967

Feeding Observations

[13 June]	074	♂ PF	15	f-sw-1/0-A-3/0-Co	job into water
	075	♀ PF	15	f-sw-1/0-A-4/0-Co	
	076	♀ m	15	f-sat-4/0-A-3/0-Co	15 ser. jobs.
	077	Pd	15	f-sw-2/0-A-4/0-Co	
				f-sat-4/0-A-4/0-Co	
	078	ai	15	lp-w-0/0-A-0/0-Co	
	079	♂ m	16	m-sat-3/0-A-3/0-Co	job
				m-w-2/1-A-2/0-Co	job near snow edge.

080 Pd 16 f-w-1/1-A-2/0-Co

081 Pd 16 f-w-2/1-A-2/0-Co

14 June

S. Gasline Ridge

	082	♂ m	10	lp-w-3/0-A-3/0-Co	
	083	♀ a	10	lp-w-1/0-A-2/0-Co	
	084	♂ a	10	lp-w-3/0-A-2/0-Co	job singly.
	085	♂ m	11	f-sat-2/0-A-3/0-Co	job
	086	♀ m	11	f-w-3/0-A-3/0-Co	
	087	♀ m	11	f-sw-2/0-A-3/0-Co	job from group of E.

15 June

Drum Area

	088	p	14	pe-sw-3/0-A-3/0-Co	
	089	b	14	rp-w-0/1-B-0/0-Co	peck

18 June

N end of Footprint Lake

	090	♂ m	13	f-sat-2/0-A-3/1-Co	
	091	♂ m	13	pe-sw-1/0-A-3/0-Co	
	092	♂ m	13	f-sat-3/0-A-2/0-Co	

collected 2

	093	Pd	13	f-sat-2/0-A-3/0-Co	
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Maclachlan
1967

Feeding Observations

[18 June]	094	Pd	13	f	w	3/0 A	3/0 C ₃	
	095	♀ Pd	13	f	w	3/0 A	3/0-C ₃	peck
	096	Ts	14	rp	d	1/1 A	2/0-C ₀	peck
				m-d	-	1/0-A	- 3/1-C ₀	peck
	097	♂m	14	lp	-w-	3/0 A	- 4/1-C ₂	jab
	098	♀m	14	m	-w-	3/0 A	- 4/0-C ₁	jab
	099	♂m	14	f	-w-	3/0-A	- 3/0-C ₂	jab
	100	♂m	15	f	-w-	3/0-A	- 3/0-C ₃	collected
	101	♂a	16	f	-sw-	3/0-A	- 1/1-C ₃	jab
				m	-w-	3/0-A	- 3/0-C ₁	
				pe	-w-	3/0-A	- 0/0-C ₃	
	102	♂m	16	f	-w-	3/0-A	- 2/0-C ₂ gr	probe
	103	♂m	16	tr	-w-	2/0-A	- 2/0-Gr	jab
	104	♀m	16	tr	-w-	2/0-A	- 3/0-C ₀	
				rp	-w-	2/0-A	- 3/0-C ₀	
	105	♀m	16	lp	-d-	1/0-A	- 2/1-C ₀	collected
	106	a	16	lp	-d-	2/0-A	- 3/1-C ₀	
	107	a	16	f	-w-	2/0-A	- 3/0-C ₀	
				f	-w-	2/0-A	- 3/1-C ₀	
	108	♀m	16	f	-w-	2/0-A	- 2/0-C ₀	
	109	T.S.	16	lp	-d-	2/0-A	- 3/1-C ₀	peck
	110	Pd	16	f	-str-	2/0-A	- 3/0-C ₀	
	111	Pd	16	f	-str-	3/0-A	- 3/0-C ₂	
	113	a	17	pe	-pw-	2/0-A	- 3/0-C ₀	
	112	♀m	17	lp	-w-	4/0-A	- 3/0-C ₁	
				tr	-str-	3/0-A	- 4/0-C ₁	
	114	Pd	18	f	-str-	3/0-A	- 3/0-C ₃	
				lp	-w-	2/0-A	- 3/0-C ₀	

Maackes
1967

Feeding Observations

19 June

aacs

115	♂m	15	f - sw - 2/0-A - 1/1-C ₃	jab + probe
116	♂m	15	f - sat - 3/0-A - 4/1-C ₂	jab
117	Pd	15	f - sat - 3/0-A - 4/1-C ₀	peck
118	♂a	15	pe - sat - 1/0-A - 2/0-C ₀	jab-rapid

series.

21 June

aacs

119	♂m	10	f - sat - 3/0-A - 0/0-C ₃	collected 3 of flock of 10.
120	♂m	10	lp - w - 3/0-A - 3/1-C ₂	collected 1.
121	T.S.	10	lp - w - 3/0-A - 3/1-C ₂	peck
122	T.S.	10	lp - w - 3/0-A - 4/1-C ₂	peck
123	TS	10	lp - w - 1/1-A - 2/1-C ₁	peck
124	TS	10	lp - w - 2/0-A - 3/1-C ₂	peck

Central Marsh

125	m	20	f - sw - 3/0-A - 4/1-C ₀	
126	♂m	20	f - sat - 4/0-A - 4/1-C ₀	probe
127	♂m	20	f - sw - 3/0-A - 4/1-C ₀	probe
128	♂m	20	f - sw - 3/0-A - 3/1-C ₀	probe
129	m	20	f - sat - 3/0-A - 4/1-C ₀	probe

Micro Mer

130	m	21	f - w - 3/0-A - 3/1-C ₀	(flock)
131	Pd	22	tr - sat - 3/0-A - 3/2-C ₂	

23 June

Drum Area

132	P	10	pe - sat - 1/0-A - 0/0-C ₂	
133	♀P	10	pe - sat - 1/0-A - 3/2-C ₀	peck
134	TS	10	m - d - 1/2-A - 2/1-C ₀	
135	♀Pd	11	f - sat - 3/0-A - 4/1-C ₂	

Marched
1967

Feeding Observations

23 June]	135	(cont) Pd	11	f-sat - 3/0-A - 2/2-C ₃	peck
	136	♂ Pd	11	tr-sat - 3/0-A - 2/2-C ₃	
	137	♂ m	11	f-sat - 3/0-A - 2/2-C ₃	
	138	P	11	pe-sat - 2/0-A - 1/1-C ₃	
	139	Pd	15	tr-sat - 4/0-A - 4/2-C ₃	
	140	♂ m	17	f-sat - 4/0-A - 3/1-C ₂	probe, jab.
	141	Qi	17	f-w - 3/1-A - 3/1-C ₁	
	142	Qi	17	lp-w - 1/0-A - 2/1-C ₀	peck
				lp-w - 1/0-A - 2/1-C ₀	peck
	143	b	17	f-d - 1/1-A - 4/1-C ₂	jab
				f-d - 1/1-A - 4/1-C ₂	jab
				f-d - 1/1-A - 4/1-C ₂	jab

continued for 25 minutes.

24 June

Micro Max

	144	a	14	pe-sat - 1/0-A - 3/2-C ₀	
	145	♂ m	15	f-w - 4/0-A - 3/1-C ₁	collected
	146	♂ m	15	m-w - 3/0-A - 4/1-C ₂	collected 2.
	147	♂ m	15	f-sat - 4/0-A - 4/1-C ₀	
	148	♂ m	15	f-sat - 3/0-A - 4/1-C ₀	
	149	Pd	15	f-sat - 3/0-A - 3/0-C ₀	just
				exposed. Island of sat in SW.	
	150	♂ m	15	pe-sw - 4/0-A - 2/0-C ₀	
	151	Pd	15	f-sat - 4/0-A - 3/0-C ₀	
	152	a	16	f-sat - 4/0-A - 3/1-C ₀	

25 June

adcs

	153	P	19	pe-sat - 1/0-A - 3/1-C ₀	peck into litter
	154	Pd	19	f-sat - 3/0-A - 1/1-C ₀	

Maekren
1967

Feeding Observations

26 June

155	a	09	f-w-3/0-A-3/1-C ₁	
156	a	09	f-w-3/0-A-4/1-C ₁	
157	b	10	m-w-3/0-A-4/2-C ₂	
158	b	10	lp-w-3/0-A-4/1-C ₂	jab
159	b	10	lp-d-2/0-A-2/1-C ₁	
			lp-w-3/0-A-4/2-C ₂	jab, probe
160	b	10	lp-w-3/0-A-3/2-C ₃	jab, probe
			lp-w-3/0-A-3/2-C ₃	jab, probe
161	p	16	pe-pw-1/0-B-3/3-C ₀	peck-
ad. Diptera on water surface.				

28 June

162	b	03	rp-w-2/0-B-2/1-C ₀	
163	P.f.	20	pe-sw-3/0-A-4/2-C ₀	collected 2.
164	Pd	20	f-sw-2/0-A-3/2-C ₀	
			f-sdr-3/0-A-3/2-C ₀	
165	Pd	21	f-sw-3/0-A-4/1-C ₀	collected.
166	Pd	21	f-sdr-3/0-A-4/1-C ₂	

29 June

167	p	03	po-pw-0/0-B-0/0-C ₀	jab into bottom- head immersed
168	p	03	po-pw-0/0-B-0/0-C ₀	jab into bottom- head immersed
169	Pa	15	m-w-3/0-A-4/2-C ₁	jab
170	Pa	15	m-d-3/1-A-4/2-C ₀	peck, jab
171	Pd	15	f-sdr-3/0-A-3/1-C ₀	
172	Pd	15	f-sw-2/0-A-3/1-C ₁	

Maeha
1967

Feeding Observations

June]	173	Pd	15	f-sw- 4/0-A-3/0-C ₁	peck near snow edge
	174	Pd	15	f-sw- 4/0-A-4/1-C ₁	
	175	Pd	15	f-w- 1/2-A-4/1-C ₀	
	176	Pd	15	f-sw- 2/0-A-3/2-C ₀	collected

July Central Marsh

[sic]	176	♂ ¹ m	15	pe-sw- 2/0-A-3/2-C ₁	probe
	177	p	15	pe-sw- 2/0-A-3/2-C ₀	
	178	♀ a	15	pe-sat- 4/0-A-4/1-C ₀	
	179	a	15	f-sat- 2/0-A-3/2-C ₀	jab
	180	Pd	15	f-sw- 3/0-A-3/0-C ₂	

4 July Microther

	181	Pf	10	pe-pw- 0/0-B-0/0-C ₀	jab into water
	182	a	11	pe-sat- 1/0-B-3/3-C ₀	jab

6 July P₁ P₁₀

	183	a	05	f-d- 2/1-A-2/2-C ₀	
	184	b	05	m-d- 2/1-A-4/2-C ₀	

14 July

	185	a	19	f-w- 3/1-A-4/3-C ₁	in flock of P.d, a, m, Ai
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15 July

	186	p	17	pe-sat- 0/0-B-0/0-C ₀	peck adult w/ 4 juvs.
	187	a	20	f-w- 3/2-A-4/3-C ₀	peck in flock
	188	a	20	m-d- 2/2-A-4/3-C ₀	
	189	a	20	f-w- 3/1-A-4/4-C ₀	
	190	Pd	20	f-w- 3/1-A-4/4-C ₀	peck

Maehren
1967

Feeding Observations

15 July]	191	♂m	20	fcd) - sar 0/0-B-0/0-Co	probe
	192	♂m	20	f-w-3/0-A-4/4-Co	peck
	193	♂m	20	f-w-3/1-A-4/4-Co	peck

17 July

Beach Ridge

194	a	13	f-w-3/1-A-5/4-Co	peck
195	a	13	m-w-2/1-A-5/4-Co	
196	m	13	f-sar-3/1-A-5/4-Co	peck, visual.
197	♀m	13	f-sw-3/0-A-4/3-Co	peck
			pe-sw-1/0-A-4/3-Co	peck
			f-sw-2/0-A-3/3-Co	peck

[Pedicia aulis in feeding area]

Central Marsh

198	m	14	f-sw-2/0-A-5/5-Co	probe
199	m	14	f-sar-2/0-A-5/4-Co	peck
200	Pf.	14	f-sw-2/0-A-4/4-Co	peck
201	m	14	f-sw-1/0-A-4/4-Co	
202	a	14	pe(d)-sw-1/0-B-3/2-Co	peck
203	m	14	f-w-2/1-A-4/3-Co	peck
204	Pf	15	pe(d)-sar-0/0-B-0/0-Co	peck
205	Fusc.	16	pe-pw-0/0-B-0/0-Co	jab
			pe-sar-0/0-B-0/0-Co	jab

18 July

Micro Mier

206	m	15	f-w-3/1-A-3/3-Co	flock
207	♂m	15	f-w-3/0-A-3/3-Co	peck, jab
208	a	16	lp-d-4/0-A-4/5-Co	collected
209	a	16	lp-w-3/0-A-6/5-Co	
210	m	16	f-d-2/2-A-3/3-Co	flock



Maclachlan
1967

Feeding Observations

21 July

FAR Marsh

211 m 09 ps(d) - sw - 0/0 - B - 0/0 - Co probe
flock

212 a 09 tr-w - 3/1 - A - 5/5 - Co peck - visual
lp-w - 2/0 - A - 5/4 - Co peck
f-w - 2/0 - A - 4/3 - Co

213 a 10 tr(d) - sw - 2/0 - A - 6/6 - Co

214 a 10 lp-w - 2/1 - A - 3/3 - Co peck
ps-sw - 3/0 - A - 6/6 - Co

215 a 17 f-w - 4/1 - A - 5/4 - Co peck

216 m 17 ps-sw - 2/0 - A - 4/4 - Co

217 Pd 17 f-w - 3/1 - A - 3/3 - Co

22 July

Central Marsh

218 a 17 ps(d) - sat - 1/0 - B - 5/0 - Co very
rapid job - continuous

219 p 17 ps(d) - sat - 7/0 - B - 9/0 - Co pick,
visual

220 p 17 ps(d) - sat - 0/0 - B - 9/0 - Co peck

221 a 17 ps(d) - sat - 1/0 - B - 5/0 - Co job

23 July

222 Pd 14 lp-d - 4/1 - A - 4/4 - Co peck 3 times

24 July

Central Marsh

223 Pd 11 f-sw - 2/0 - A - 6/6 - Co

224 a juv 11 f-s - 3/0 - A - 7/6 - Co

225 b 11 ps(d) - s - 9/0 - B - 9/0 - Co peck

25 July

Central Marsh

226 m 09 ps-sw - 4/0 - A - 4/4 - Co

227 m 09 ps(d) - pu - 4/0 - B - 4/0 - Co

Hackman
1967

Feeding Observations

25 July

Gasline Ridge

228	a	15	f-d-2/1-A-3/3-Co	peck. flock
229	a	16	f-w-3/0-A-4/4-C3	peck
			do. w/ juvs.	
230	Pd	17	f-d-4/2-A-4/4-Co	peck. flock.
231	a	20	pe-sat-0/0-A-0/0-Co	probe
			pe-sat-0/0-A-0/0-Co	probe
232	Pd	21	ch-w-3/1-A-4/4-Co	peck

26 July

Fls Flat

233	Pd	09	m-w-2/2-A-3/3-Co	peck
234	Pd	09	m-d-1/2-A-3/3-Co	peck
235	a	09	f-d-2/1-A-5/5-12	peck. flock
236	a	09	m-w-1/2-A-5/4-Co	peck. fl.
237	Pd	09	m-d-1/1-A-4/4-Co	peck. fl.
238	a	09	lp-d-4/0-A-4/4-Co	peck
			f-w-4/0-A-4/4-C2	peck
239	a	10	m-d-2/2-A-5/4-Co	peck. fl.
240	a	10	po-pos-0/0-A-0/0-Co	jab. fl.
241	Pd	11	f-sw-3/0-A-5/5-Co	
242	a	12	lp-d-3/1-A-4/4-C1	

Central Marsh

243	a	14	f-s-3/1-A-5/5-Co	
244	m	16	f(d)-sw-0/0-B-4/4-Co	peck.
			collected 4.	
245	b	16	s-w-0/0-B-0/0-Co	peck

27 July

246	p	16	f(d)-s-0/0-B-0/0-Co	
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Macleod
1967

Feeding Observations

30 July

Micro-Mar - tangls/act I

247	a	14	de-w-3/1-A-4/2-C2	
248	fm	14	pe-pm-1/0-A-3/3-Co	peck
249	a	14	pe-sw-3/0-A-5/5-Co	peck.
250	Pd	14	f-sw-3/1-A-5/5-C1	peck
			f-sw-3/0-A-5/5-Co	
251	L.s.	14	pe-sw-3/0-A-4/4-Co	jab.
252	m	14	po-pw-1/0-A-5/5-Co	
			pe-pw-2/0-A-5/5-Co	jab
253	Pd	15	pe-sw-3/0-A-6/6-Co	
254	p	15	pe-sw-2/0-A-3/3-Co	
255	a	15	lp-w-2/1-A-4/4-Co	
256	p	15	pe-sw-2/0-B-4/3-Co	
			pe-sw-2/0-A-5/5-Co	peck
			f-s-2/0-A-3/3-Co	peck
			pe-sw-2/0-A-3/3-Co	
257	p	15	pe-sw-2/0-A-3/3-Co	shallow jab
			pe-sw-2/0-A-3/3-Co	peck 5

31 July

Shooting Station

258	p	13	pe-sw-1/0-B-2/2-Co	jab
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1 August

Drum Area

259	b	16	pe-pw-0/0-B-0/0-Co	peck
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2 August

MicroMar

260	fm	16	pe-s-1/0-B-3/3-Co	
261	Pd	14	m-d-2/2-A-3/3-Co	peck
262	b	16	f(d)-w-0/0-B-0/0-Co	jab
263	p	16	pe(d)-pw-0/0-B-4/4-Co	
264	b	16	pe(d)-sw-0/0-B-0/0-Co	peck + jab

Maehren
1967

Feeding Observations

3 August

Beach Ridge Crossing

265 Pd 10

lp-w-3/1-A-5/4-Co

266 Pd 11

lp-w-2/2-A-4/4-Co

5 August

East of Drum Area, So. of Truck path

267 m 15

pe-s-0/0-B-0/0-Co probe
collected

268 a 15

f-s-0/0-B-0/0-Co jab + probe

269 p 15

pe-s-0/0-B-0/0-Co u. shallow jab.
collected 3

270 a 15

pe-s-0/0-B-0/0-Co jab
collected

271 a 15

pe-s-0/0-B-0/0-Co jab
collected - 8/1 799.

272 p 15

pe-s-0/0-B-0/0-Co shallow jab
collected - 8/1 798.

273 m 15

pe-s-0/0-B-0/0-Co jab

274 m 15

pe-s-0/0-B-0/0-Co jab

275 p 15

pe-s-0/0-B-0/0-Co
collected.

↓
Micro
Mes

276 a 16

m-w-3/1-A-5/5-Co

m-w-3/1-A-5/5-Co

277 Pd 16

m-w-3/1-A-5/5-Co

278 m 16

pe-sw-2/0-A-6/6-Co

279 a 16

lp-w-2/1-A-4/4-Co jab

280 Pd 16

lp-w-2/0-A-4/4-Co

collected - 8/1 805

281 a 16

lp-d-2/0-A-3/3-Co jab

pe-pw-1/0-A-4/4-Co jab

Meeker
1967

Feeding Observations

281 (cont)

collected 2 of 12 - SN 803, 804

9 August

Shooting Station

282 a 20

PE - pw - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co job

283 p 20

PE - s - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co v. shallow

job - peck.

284 a 20

PE - pw - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co job

f - w - $\frac{4}{0}$ -B - $\frac{1}{1}$ -Co job.

as jacking to coastal pond.

285 a 20

PE - pw - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co job

286 p 20

PE - sw - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co peck or

shallow job - 13 before.

11 August

Drum Area

287 a 13

PE - pw - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co job

288 p 13

PE - sat - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co v.s. job.

12 August

Birkenirk

289 a 16

f - w - $\frac{4}{0}$ -A - $\frac{1}{1}$ -Co job

collected 1 of 10

290 a 16

PE - pw - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co job

291 A.i. 16

PE - s - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co Flipping

292 p 16

PE - pw - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co

14 August

Drum Area

293 p 14

PE - sat - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co v.s. j.

294 a 14

PE - pw - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co job.

ad. + immatures.

Holmes' Morass

295 imm. a. 15

PE - pw - $\frac{2}{0}$ -A - $\frac{5}{5}$ -Co

296 (45) a 15

PE - pw - $\frac{0}{0}$ -B - $\frac{0}{0}$ -Co job

297 (10) a 15

PE - d - $\frac{2}{2}$ -A - $\frac{4}{4}$ -Co job

Maclean
1967

Feeding Observations

297	[cont]		pe - pw - 0/0 - A - 0/0 - Co	job & probe
298	a	16	po - pw - 0/0 - B - 0/0 - Co	job
			collected 1 of 12.	
299	(8) a	16	pe - pw - 1/0 - A - 6/6 - Co	job & probe
			collected 2 of 8.	

15 August

South Voth Area

300	a	13	tr - s - 0/0 - A - 0/0 - Co	job
301	(20) a	14	lp - d - 2/2 - A - 5/5 - Co	job

16 August

FAA

302	LS	16	pe - s - 2/0 - A - 6/6 - Co	job & probe
303	(25) a	16	tr - s - 1/0 - A - 6/6 - Co	job
304	m	16	tr - s - 1/0 - A - 6/6 - Co	job & probe
			collected - sm 823	

305	p	16	tr - s - 0/0 - B - 0/0 - Co	
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306	a	16	tr - s - 0/0 - B - 0/0 - Co	
-----	---	----	-----------------------------	--

17 August

tanglefoot I

307	m	15	pe - sw - 1/0 - A - 6/6 - Co	job
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18 August

FAA

308	m	14	pe - pw - 3/0 - A - 8/8 - Co	collected
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309	m	14	f - s - 0/0 - B - 0/0 - Co	job
-----	---	----	----------------------------	-----

310	m	14	f - sw - 3/0 - A - 8/8 - Co	
-----	---	----	-----------------------------	--

311	oo + imm a	14	lp - d - 4/1 - A - 4/4 - Co	collected 2
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312	Pd	15	lp - w - 4/1 - A - 4/4 - Co	collected
-----	----	----	-----------------------------	-----------

313	Pd	15	pe - s - 2/0 - B - 4/6 - Co	
-----	----	----	-----------------------------	--

Marchen
1967

Feeding Observations

314 m 15 PE-pw-0/0-B-0/0-Co job
PE-S-0/0-B-0/0-Co job

19 August

Drum Area

315 (15) p B PE-S-0/0-B-0/0-Co u.s. j.

316 L.S. (11) B PE-S-0/0-A-0/0-Co job

PE-pw-0/0-A-0/0-Co job

317 (3) L.S. B po-pw-1/0-B-6/6-Co job

318 (15) imm. a. B po-sw-1/0-A-8/8-Co job & probe

Family Creek Area

319 Pd B (mch)-d-3/1-A-4/3-Co

320 (2) Pd 14 S-pw-0/0-B-0/0-Co

321 (6) Pd 14 lp-d-1/2-A-4/4-Co

PE-pw-0/0-A-0/0-Co

322 imm. a. 14 PE-pw-1/0-A-6/6-Co

323 m 14 tr-s-3/0-A-5/5-Co

324 Pd 14 f-d-1/2-A-3/3-Co peck

325 m 14 tr-sw-2/0-A-6/6-Co

326 (3) L.S. 15 po-pw-1/0-A-6/6-Co

327 Pd 15 lp-w-3/1-A-4/4-Co

328 a 15 lp-w-3/1-A-4/4-Co job

20 August

So. of FAA.

329 m 19 f-w-4/0-A-5/5-Co job

collected 2 - sn 833, 4

330 imm a. 20 tr-sw-1/0-A-5/5-Co probe

collected - sn 832

331 m 20 PE-S-0/0-A-0/0-Co probe & job

Maclean
1967

Feeding Observations

21 August

By traplines IV A-B

332	m	09	f-sw- $\frac{2}{10}$ -A- $\frac{4}{4}$ -Co	job & probe
333	m	09	pe-sw- $\frac{1}{10}$ -A- $\frac{5}{5}$ -C ₃	
334	m	09	pe-sw- $\frac{2}{10}$ -A- $\frac{8}{8}$ -Co	
335	imm-a	10	po-pw- $\frac{3}{10}$ -A- $\frac{6}{6}$ -Co	
			lp-w- $\frac{3}{10}$ -A- $\frac{4}{4}$ -Co	job
336	Pd	10	lp-d- $\frac{3}{10}$ -A- $\frac{4}{4}$ -C ₂	

collected

↓
Beach
Ridge

337	imm-a	14	pe-pw- $\frac{0}{10}$ -B- $\frac{0}{10}$ -Co	job
338	[8] Pd	15	m-d- $\frac{1}{12}$ -A- $\frac{4}{4}$ -Co	peek
339	[aotimm] a	15	f-w- $\frac{3}{11}$ -A- $\frac{3}{3}$ -Co	job

↓
Holmes'
Marsh

340	L.S.	15	po-pw- $\frac{0}{10}$ -A- $\frac{0}{10}$ -Co	job
			pe-sw- $\frac{0}{10}$ -A- $\frac{0}{10}$ -Co	job
			f-s- $\frac{0}{10}$ -A- $\frac{0}{10}$ -Co	job

↓
Central
Marsh

341	m	16	f-sw- $\frac{4}{10}$ -A- $\frac{6}{6}$ -Co	
342	L.S.	16	f-sw- $\frac{2}{10}$ -A- $\frac{6}{6}$ -Co	
343	m	16	f-s- $\frac{3}{10}$ -A- $\frac{5}{5}$ -Co	
344	m	16	f-s- $\frac{3}{10}$ -A- $\frac{6}{6}$ -Co	

22 August

By traplines III A-B, to Village Ridge

345	p	13	pe-pw- $\frac{0}{10}$ -B- $\frac{0}{10}$ -Co	peek into water.
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346	imm-a	13	pe-pw- $\frac{0}{10}$ -B- $\frac{0}{10}$ -Co	
347	[6] L.S.	13	pe-pw- $\frac{0}{10}$ -B- $\frac{0}{10}$ -Co	job. collected 1.

348	Pd	13	f-w- $\frac{3}{10}$ -A- $\frac{5}{5}$ -C ₂	
349	[8] a	14	lp-d- $\frac{3}{10}$ -A- $\frac{4}{3}$ -C ₁	
350	[5] a	14	lp-w- $\frac{2}{10}$ -A- $\frac{4}{2}$ -Co	
351	Pd	14	lp-w- $\frac{2}{10}$ -A- $\frac{4}{2}$ -Co	peek

Nachson
1967

Feeding Observations

22 August] 352	a	14	lp-w-3/1-A-4/2-Co	
353	a	14	lp-w-3/1-A-4/2-Co	
354	m	15	po-pw-0/0-B-0/0-Co	jab
			pe-s-0/0-B-0/0-Co	jab
			pe-sw-2/0-B-1/6-Co	jab
355	L.S.	15	pe-pw-1/0-B-8/8-Co	
356	L.S.	15	pe-s-7/0-A-4/4-Co	
357	L.S.	15	pe-pw-1/0-B-5/5-Co	jab
358	L.S.	15	pe-sw-2/0-B-5/5-Co	jab
359	m	15	pe-pw-0/0-B-0/0-Co	jab
360	imm. a	15	pe-pw-0/0-B-0/0-Co	probe
361	L.S.	15	pe-pw-0/0-B-0/0-Co	probe
362	LS	15	f-s-2/0-A-4/3-Co	jab
363	Pd	15	m-d-2/2-A-4/3-Co	peek collected.
364	Pd	15	f-d-2/1-A-4/4-Co	peek
365	m	15	pe-pw-0/0-B-0/0-Co	jab
366	L.S.	15	po-pw-0/0-B-0/0-Co	jab
367	L.S.	15	pe-pw-0/0-B-0/0-Co	jab
			pe-s-2/0-A-4/3-Co	jab
368	m	15	pe-pw-2/0-B-4/4-Co	
369	Pd	15	pe-pw-2/0-B-4/4-Co	
370	ad. a	15	pe-pw-2/0-A-5/4-Co	
			lp-d-2/0-A-2/1-Co	
			lp-d-2/0-A-2/1-Co	
371	Pd	15	pe-sw-0/0-B-0/0-Co	peek
372	LS	15	pe-pw-1/0-B-6/6-Co	jab
373	a	15	lp-d-2/0-A-3/2-Co	jab

Hochea
1967

Feeding Observations

23 August

No. Meadow Lake

374

Pd

17

pe-s- $\frac{2}{10}$ -A- $\frac{5}{4}$ -Co

375

imm a

17

pe-sw- $\frac{2}{10}$ -A- $\frac{5}{5}$ -Co job.

collected 2

376

a

17

lp-w- $\frac{3}{10}$ -A- $\frac{4}{3}$ -Co

Central Marsh 377

L.S.

18

pe-pw- $\frac{0}{10}$ -A- $\frac{0}{10}$ -Co job.

collected 1 of 12

24 August

FAd

378

Pd

14

f-s- $\frac{2}{10}$ -A- $\frac{5}{5}$ -Co

379

m

15

f-sw- $\frac{3}{10}$ -A- $\frac{8}{8}$ -Co collected

25 August

FAd

380

m

11

f-sw- $\frac{3}{10}$ -A- $\frac{8}{8}$ -Co

collected 1

26 August

~~FAd~~ Vick - Lowellyn's site

381

Pd

16

lp-w- $\frac{4}{10}$ -A- $\frac{5}{4}$ -Co

collected lone bird

27 August

Central Marsh

382

m

17

f-s- $\frac{3}{10}$ -A- $\frac{4}{3}$ -Co

collected

383

m

17

f-sw- $\frac{3}{10}$ -A- $\frac{4}{3}$ -Co

collected

28 August

Barren Airport

384

m

11

pe-

S. MacLean

1967

insect samples

MacLean
1967

Berle'see Soo Sampling

2 August

8 Soo samples collected from Central Marsh, near Emergence trap and tanglefoot II: 5 & 6. Put in funnels 4 August.

funnel #

5 Aug - A.M.

1

2

3

2 ea. P. hannai : 15 mm, 17 mm.

4

5

2 ea. P. hannai : 18 mm, 15 mm.

6

6 ea P. hannai : 16, 16, 16, 13, 16, 15 mm.

7

1 ea. P. hannai : 15 mm.

8

1 ea P. hannai : 15 mm.

5 Aug. P.M.

1

2

3

3 P. hannai : 15, 14, 14 mm.

4

5

6

7

8

1 P. hannai - 12 mm

6 Aug. A.M.

#1 -

1 P. hannai larva : 14 mm.

#8 -

7 triacera g. larvae - 4, 6, 6, 6, 6, 6, 6 mm.

In alcohol

Maclean
1967

Berlese

2 Aug. (Cont.)

9 Aug. Am

6 5 P. gracilistyla larvae 4, 5, 6, 6, 6, mm.
In Alcohol

8 18 P. gracilistyla larvae - most 4 and 5 mm.
1 - 7 mm, 1 - 3 mm.
In Alcohol.

Maclean
1967

Berlese soo sampling

2 August

8 Soos cored from area N. of Beach Ridge crossing - same as samples of 30 July.

4 pond edge, 4 saturated trough.

Placed in funnels 4 August.

Funnel # : 5 August, A.M.

1

2

2 P. hannai : 15, 15 mm

3

4

1 P. hannai : 17 mm

5

1 P. hannai : 17 mm

6

7

8

5 Aug. P.M.

1

1 P. hannai : 12 mm.

2

1 P. hannai : 6 mm.

3

4

1 P. hannai : 7 mm.

5

1 P. hannai : 11 mm.

6

7

8

3 Pronocera g. : 4, 4 mm, 3 mm. - in alcohol.

6 Aug. A.M.

#2

1 P. hannai larva - 6 mm.

9 Aug. A.M.

#1

1 P. hannai larva - 12 mm.

Machene
1967

Berlese 300 Sampling

9 August

8 Sod cores collected from Central Marsh -
near corner - on undisturbed f-s - 2/5 A - 6/6 Co.
Put into funnels 2330

10 Aug - A.M.

- | | |
|----|---|
| #1 | 1 <u>P. hanna</u> i : 15 mm |
| 2 | |
| 3 | |
| 4 | 1 <u>P. hanna</u> i : 17 mm; 1 <u>Prionocera</u> q. : 26 mm |
| 5 | 1 <u>P. hanna</u> i : 15 mm; 2 <u>Prionocera</u> : 31, 31 mm. |
| 6 | 1 <u>P. hanna</u> i : 15 mm |
| 7 | 1 <u>Prionocera</u> : 25 mm |
| 8 | |

11 August - A.M.

12 August - A.M.

- | | | |
|----|-------------------------------------|-----------------------------|
| #1 | 1 <u>P. hanna</u> i : 18 mm | 1 <u>P. hanna</u> i : 5 mm |
| 2 | | |
| 3 | 1 <u>P. hanna</u> i : 16 mm | |
| 4 | | |
| 5 | 2 <u>P. hanna</u> i : 15 mm, 14 mm. | |
| 6 | | |
| 7 | | 1 <u>P. hanna</u> i : 13 mm |
| 8 | | |

+ 2 found dry on table - probably #4 : 15, 14 mm

[cont.]

Machida
1967

Berlese Soil Samples

9 August (cont) 8 cores from Central Marsh -
Hans picked 13 August -

#

1 2 P. hannah : 20 mm, 9 mm.

2 1 P. hannah : 5 mm,

3 4 P. hannah : 15, 6, 7, 6 mm.

4 2 P. hannah : 18, 7 mm

5

6

7

8

∴ Berlese removed $\frac{11}{14}$ of larvae > 10 mm, = 79%
not too good

Machan
1967

Berlese Soo Sampling

9 August

8 soos collected from polygon-bough system between shooting station & US Corps site. tr-sw-2/1-A-5/5-Co. Pinned into funnels 2330

10 Aug - A.M.

#1

2

3

2 P. h. : 15, 15 mm.

4

5

1 P. hannai - 15 mm

6

7

3 P. hannai : 17, 17, 15 mm

8

1 P. hannai : 18 mm

11 August - A.M.

Hand-pick - 13 Aug

#1

2

1 P. hannai : 16 mm

3

1 P. hannai : 15 mm

4

2 P. hannai : 16, 13 mm.

5

6

1 P. hannai : 17 mm

7

8

12 August - A.M. + P.M. -

#5

1 P. hannai : 9 mm

#6

1 P. hannai : 15 mm

∴ Berlese removes $\frac{13}{14}$ larvae, or 93%.

Maheen
1967

Berlese 300 Sample -
Chironomus

9 August

Sample of 8 cores from Central Marsh -
counted after 72 hours:

#1	-	5
2	-	6
3	-	4
4	-	13
5	-	9
6	-	13
7	-	10
8	-	2

Sample of 8 cores from Polygon bog system -
N end of Holmes Marsh:

#1	-	2
2	-	4
3	-	6
4	-	1
5	-	2
6	-	9
7	-	7
8	-	4

Machens
1967

Berlese Soa Samples

12 August

16 cores from mesic tundra -
8 between Micromes and tanglefoot I
8 from Beach Ridge East of Micromes.
Pur into funnels 2300 12 August.

13 August

- # 2 : 1 P. hannai - 7mm.
- # 7 : 1 T. carinifrons - 21mm
- # 12 : 1 P. hannai - 10mm
- # 1 : 1 P. hannai - 10mm. sample hand-picked.

14 August

- # 4 : 1 P. hannai - 7mm.
- # 6 : 1 P. hannai - 16mm
- # 1 : 1 P. hannai - 18mm

15 August

- #14 : 1 T. carinifrons - 21mm
- 11 : 1 P. hannai - 17mm
- 6 : 1 P. hannai - 5mm
- 5 : 3 P. hannai - 10, 7, 6mm
- 3 : 2 P. hannai - 11, 7mm
- 2 : 3 P. hannai - 5, 7, 7mm

16 August

- # 2 : 1 P. hannai - 7mm
- # 6 : 1 P. hannai - 7mm

[cont.]

Mackay
1967

Berlese Soil Samples

12 August

[cont.]

Plans picked 18 August:

13 - 1 T. cetrinifrons - 22 mm

+ 1 in consolidated material - ∴ II unknown.

t.c. - 8 mm.

Maclean
1967

Barlese Soa Samples

16 August

16 soa samples from music tunora (t-u)
9-16 ~~18~~ from Beach Ridge near FAA;
1-8 ~~9-16~~ from Voth area - just N. of family creek.
Placed in funnels 1730.

17 August

1 - 1 T. carinifrons - 10 mm

2 - 1 T. C. - 9 mm

3 - ~~4 T. C. - 7 mm~~

4 -

5 - 1 t.c. - 7 mm.

6 -

7 -

8 -

9 - 1 P. lannai - 16 mm

10 -

11 -

12 -

13 -

14 -

15 -

16 -

18 August, Ft.

2 t.c. - 11, 9 mm

~~1 t.c. - 8 mm~~

1 t.c. - 15 mm

1 T.c. - 8 mm

1 P.h. - 11 mm

1 P.h. - 15 mm

1 P.h. - 10 mm

1 t.c. - 25 mm

1 P.h. - 10 mm

1 t.c. - 13 mm

1 T.c. - 10 mm

1 t.c. - 8 mm

2 T.c. - 13, 13 mm

2 P.h. - 13, 13 mm

Mackean
1967

Berlese Soa Samples

22 August

#1-8 : polygon trough - ser - 2/0-A -
from either side of Garwell Road, South
of FAA. Put into funnels 2200

24 Aug - 0800.

25 Aug - 0800

#1 - 1 P.h. - 15 mm

2 - 1 P.h. - 18 mm

3 -

1 P.h. - ¹⁹~~18~~ mm

4 - 1 P.h. - 16 mm

5 - 1 P.h. - 13 mm

6 - 1 P.h. - 11 mm

7 - 4 P.h. - 19, 19, 16, 16 mm

8 - 1 P.h. - 19 mm

26 August - hand-picked every other sample
found nothing. ∴ assume 100% efficiency.

Machean
1967

Berlese Zoo Samples

22 August

2 cores - #9-16 : from pond edge -

Sdc E' SW - 2/0-A - ...

Near South End of traplines III A-B.

Put into funnels at 2200.

24 Aug - 0800

25 Aug. - 0800

#9 - 2 P.h. - 17, 17mm.

10 -

11 -

1 P.h. - 17mm.

12 -

13 - 1 *Prionocera* - 18mm

14 -

15 -

16 1 P.han. - 20mm

26 August - hand-picked every other sample -
found nothing. \therefore assume 100% efficiency.

Maehen
1967

Soe Samples

24 August

8 samples from low polygon - west, taken along Garwell Road, S. of FAN. Hand-picked.

#1 - nothing

2 - 1 Tipula : 15 mm.

3-8 : no tipulids! and I looked!
one sample had 6 Staphylinids.

25 August

5 samples mesic tundra. F-w-3/0 A -
taken just West of Jewell's Voth
establishment and hand-picked in the field.

#1 : 1 T. c. - 20 mm; 1 P. h. - 12 mm.

#2-5 : nothing.

5 Duplicates taken for beardless to see if
small larvae were overlooked in hand-picking.
Completely dried in funnels - nothing.

Maclean
1967

Soo Samples

25 August

8 samples from Gasline Ridge, 50 m. East
of major mound.

#1 : 3 T.c. - 20, 20, 20 mm.

2 : nothing

3 : 1 t.c. - lost, but about as #1.

#4, 5, 6, 7, 8 : nothing.

again - dumped Staphylinid in area

8 samples from upland just west of Gasline
and west of Gasline Ridge. lp-wand - 7/10.
Nothing! All 8 of them hand-picked.

Maclen
1967

Berlese Zoo Samples

26 August

8 samples from saturated polygon
trough on Beach Ridge, where it is
crossed by Gaswell Road. Put into
funnels 1700.

27 August - 1500

#1	nothing
2	
3	
4	
5	
6	
7	
8	↓!

Maheen
1967

Berlese Goo Samples

26 August

8 samples from saturated and standing water pond margin - from beach ridge, where it is crossed by Gaswell Road.
Put into funnels 1700

27 August - 1500

#9 -

10 - 1 Prionocera: 20 mm; 1 P.h.: 20 mm

11 - 2 Prionocera: 30, 25 mm.

12 - 3 Prionocera: 22, 18, 18 mm

13 - 4 P.h.: 14, 15, 16, 17 mm

14 - 1 P.h.: 18 mm

15 - 1 P.h.: 16 mm

16 - 1 P.h.: 17 mm

28 August - 0400

#9 - 1 P.h. - 12 mm

10 - 1 P.h. - 17 mm

16 - 1 P.h. - 13 mm

Pit falls

3 July

Beach Ridge Crossing

9 ad ♂ tipula

8 ad ♀ tipula

1 ad ♀ Prianocera

1 ad ♂ Pedicia

2 Staphylinids

2 Spiders

21 July

tanglefoot site I -

3 ♂ tipula

1 ♀ tipula

1 ♂ Pedicia

1 ♀ unknown tipulid? - saved in ethanol

1 Salix

1 Carabid

1 Muscid

24 July

1 ♂ tipula

5 ♀ tipula

3 unknown tipulid? saved w/ above - 21 July

8 Brachycerans

3 Salix

13 Spiders

3 Staphylinids

5 large nematocera

10 sm. nematocera

Marchen
1967

Tanglefoot

30 June

I-1:

49 Small ad dipterans

1 ad. # Tenthredinio

1 Spider

1 ad. Chironomus - ♂

I-2:

106 Sm. ad. dipterans

1 ad. Chironomus - ♀

1 ad. Muscis

2 Spiders

I-3:

26 Sm. ad. dipterans

1 ad tenthredinio

2 Spider

I-4

11 Sm. ad Diptera

1 ad. Chironomus ♀

I-5:

25 Sm. ad. diptera

1 ad. Chironomus ♀

1 ad. Muscis

1 Spider

1 Hemiptera nymph - Salicidae

I-6:

7 Sm. ad. Diptera

1 Spider

1 Salicidae - nymph

2 Sm. ad Chironomus - 1 ♀, 1 ?

Maclen
1967

tanglefoot

30 June

II-1:

14 sm. ad. Diptera
7 ad. ~~♂~~ tenthredinids
4 sm. ad. Chironomids
3 ad. Muscids

II-2:

9 sm. ad. Diptera
3 ad. Muscids
8 ad. tenthredinids

II-3:

16 sm. ad. Diptera
5 ad. Muscids
4 ad. tenthredinids
2 ad. Ichneumonids
1 Spider
1 ad. ♂ Tipula
5 sm. ad. Chironomids

II-4:

12 sm. ad. Diptera
4 Spiders
2 Ichneumonids
4 ad. tenthredinid
1 ad. Muscid

II-5:

490 sm. ad. Chironomids
6 Spiders
4 sm. ad. Diptera (other than ♂)

Maechan
1967

Tanglefoot

[30 June] II-6:

310 Sm. ad Chironomids
6 Spiders
2 Sm. ad. diptera
1 ad. tenthrionid
1 Salicid nymph
1 Muscid adult

3 July I-1:

433 Sm. ad. diptera
4 ad. Chironomids - small
1 Spider
3 ad. tenthrionids
1 ♂ Pedicia
8 ad. Chironomids - large
1 ad. Muscid

I-2:

23 large ad. Chironomids
1 ♂ ad. Pedicia
826 sm. ad. Diptera 750 + 184 + 200
10 sm. ad. Chironomids 4
3 ad. Muscid
5 ad. tenthrionid

I-3:

8 lg. ad. Chironomids
552 Sm. ad. Diptera 750 + 184 + 200
15 Sm. ad. Chironomids 4
5 ad. Muscids 4
2 ad. tenthrionids

Maclaren
1967

Tanglefoot

3 July I-4:

1 ♂ Tipula

310 sm. ad. Diptera

20 sm. ad. Chironomids

3 ad. Muscids

3 lg. ad. Chironomids

I-5:

3 ♂ Tipula

215 Sm. ad. Diptera

10 sm. ad. Chironomids

4 lg. ad. Chironomids

5 ad. Muscids

1 ad. tenthrionid

I-6:

2 ♂ Tipula

1 ♂ Pedicia

220 Sm. ad. Diptera

14 Sm. ad. Chironomids

3 lg. ad. Chironomids

1 ad. Muscids

1 spider

II-1:

4 ♂ tipula

83 sm. ad. Diptera

15 sm. ad. Chironomids

16 ad. Muscids

6 ad. tenthrionid

Maclean
1967

Tanglefoot

[3 July] II-2:

5 July (DAB)
count 20

1 ♂ Tipula
30 sm. ad. Chironomids
5 sm. ad. Diptera
5 Ad. Muscids
6 Tenthredinid
1 Saldidae
5 Staphylinids

II-3

70⁺ Tipula
70⁺ Pedicia
21 Ad. sm. Chironomids
98 Ad. sm. Diptera
9 Muscids
1 Spider
7 Tenthredinids

II-4

4 ♂ Tipula
7 ♂ Pedicia
15 sm. Chironomids (ad)
64 sm. ad. Diptera
2 Muscids
12 Tenthredinids
2 Spiders
3 Ichneumonid

Machens
1967

tanglefoot

[3 July]

II-5

401 Sm. Ad. Diptera
41 Lg. Ad. Chironomids
3 Muscids

II-6

507 Sm. Ad. Diptera
1 Lg. Ad. Chironomids
1 sm. " "
3 muscids

6 July

I-1 :

Tipula

♀

♂

1

#

2

Pedicia

1

sm. ad. Diptera

149

Chironomids - sm

6

lg.

4

Musoids

8

Spiders

1

Centredonids

3

Schneumonids

1

Maclean
1967

Tanglefoot

[6 July]
I-2:

	♀	♂
<u>Tipula</u>		# 2
<u>Pedicia</u>		# 2
<u>Prionocera</u>		1
sm. ad. Diptera	222	
Muscids	11	
Chironomids - lg.	8	
sm.	20	
Spiders	2	

I-3:

	♀	♂
<u>Tipula</u>		4
<u>Pedicia</u>		1
<u>Prionocera</u>		1
sm. ad. Diptera	174	
Muscids	2	
Chironomids - lg.	4	
sm.	13	
tenth. exuviae	1	

I-4:

	♀	♂
<u>Tipula</u>		6
sm. ad. Diptera	125	
Chironomids - lg.	2	
sm.	11	
Muscids	3	
tenth. exuviae	1	

Marble
1967

Tanglefoot

[6 July]

I-5:

Tipula

♀

♂

3

sm. ad. diptera

24

Chironomus lg.

1

sm.

4

Muscios

4

tenthredinids

1

I-6

tipula

♀

♂

1

13

Pedicia

2

sm. ad. diptera

115

Chironomus lg.

2

sm

2

Muscios

1

II-1:

tipula

♀

♂

5

sm. ad. diptera

35

Chironomus lg.

1

sm

1

Muscios

4

tenthredinids

6

Maclera
1967

tanglefoot

[6 July]

II-2:

Tipula

♀

♂

1

5

Pedicia

1

sm. ad. diptera

13

Muscios

9

tenthredinios

3

Ichneumonios

5

II-3:

Tipula

♀

♂

3

11 (eleven)

Prionocera

14

sm. ad. diptera

50

Chironomios sm

2

Muscios

5

tenthredinios

6

Ichneumonios

2

Spider

1

II-4:

Tipula

♀

♂

2

7

Pedicia

1

30

sm. ad. diptera

52

Muscios

3

Chironomios sm

6

tenthredinios

4

Mackay
1967

tanglefoots

[6 July]

II-5:

(no tipulids)

Chironomus - sm	-	2
lg	-	4
Muscios		2
sm. ad. diptera		87
spiders		3

II-6

(no tipulids)

sm. ad. diptera	-	125
Chironomus - lg	-	16
sm		1
Muscios		4
Spiders		6

9 July I-1:

	♂	♀
<u>Tipula</u>	6	
<u>Prionocera</u>	3	
<u>Prociq</u>	4	2
Chironomus - lg.	7	
sm	11	
sm. ad. Diptera	152	
Muscios	5	
Spiders	2	
Tenthredinids	3	
Schneumonids	1	

I-2:

1967

Revised by 7-VII read 11-VII

I-1

	-1	-2	-3
Tip.	 	 9 	 7 1
Prion.			9 1
Ped.	♂ ♀	♂	1
Chiro - lg	 		8
" sm	 /	 	
Musoids			
Diptera	152	281	257
Spiders		/	
Tenthred.		/	
Insects			

	- 4	- 5	- 6	
Tip	17	18	11	11
Person	2	3	11	1
Ped.	1	3	none	
Chero - lg.	9	11	1	
" - sm			1	
Musoids				
Diptera	- 242	141	219	
Spiders	1		11	
Tentha	1	1	1	
Johnson			-	

1967

Picked up 9-III, read 12-III

site - II

	-1		-2		-3	
Tip.	♂ 16	♀ 1	♂ 9	♀ 1	♂ 13	♀ 2
Prion.	<hr/>				0	0
Ped.	1	2	2		16	7
Chiro.-lg.					1	
" -sm	II		III		II	
Musoids	IIII		IIII		IIII	IIII
Diptera	264		139		146	
Spiders	II				IIII	
Tenthred.	II		III		IIII	
Ichneu.	1		1		-	
Cicadellid	1					

	-4		-5		-6	
Tip.	♂ 18	♀ 2	♂ 2	♀ -	♂ 1	♀ -
Prion.	1		3	2	-	-
Ped.	33	7	1	2	3	-
Chiro.-lg.	1		26 + 1		8	
" -sm	III		IIII		II	
Musoids	IIII		29 + 32		{13, 21 IIII	
Diptera	139		681 (x4)*		396 (x4)*	
Spiders	IIII		1		II	
Tenthred.	IIII					
Ichneu.	II					

*Count from 50x5 cm. only

Maclean
1967

Tanglefoot

12 July
I -

	①		②		③	
	♂	♀	♂	♀	♂	♀
<u>tipula</u>	20	6	7	3	16	3
<u>Priorocera</u>	4	0	1	0	5	0
<u>Pedicia</u>	34	2	20	4	12	2
<u>Nematocera - lg</u>	2		1		6	
sm	624		341		411	
<u>Brachycera</u>	21		20		23	
<u>Anthomyiidae</u>	6		7		1	
<u>Spiders</u>	4		0		2	

	④		⑤		⑥	
	♂	♀	♂	♀	♂	♀
<u>tipula</u>	31	8	51	11	29	10
<u>Priorocera</u>	2	0	0	0	0	0
<u>Pedicia</u>	4	0	15	1	34	1
<u>Nematocera - lg</u>	18		11		0	
sm	322		539		382	
<u>Brachycera</u>	38		59		68	
<u>Anthomyiidae</u>	1		1		3	
<u>Spider</u>	1		0		0	
<u>Silphidae</u>	1		0		0	
<u>Ichneumonidae</u>	0		1		0	

1967 Picked up 12-VII

II -

	-1	-2	-3
Tip.	8 8 8 3	8 8 24 5	8 8 36 5
Prion.	- -	- -	- -
Ped.	51	2 1	31 6
Chiron. - lg.	-	1	-
" - sm.	1	-	-
Muscids	 	28	
Diptera	234	327	353
Spiders	-	1	1
Tenthre.			
Ichneu.	-	-	
Cicadellae	1	-	-

	-4	-5	-6
Tip.	8 8 18 5	8 8 - -	8 8 - -
Prion.	- -	1 -	-
Ped.	62 3	** -	
Chiron. - lg.	1	4	-
" - sm.	1		
Muscids	 	65	
Diptera	274	1228 x 4*	792 x 4*
Spiders			-
Tenthre.		-	-
Ichneu.	1	-	-

* Count from 1x10 cm. only. ** eleven

Macler
1967

Tanglefoot

15 July I-1:

ch - sat - $3/0$ - A - $2/2$ - C₃

	♂	♀
<u>Tipula</u>	11	10
<u>Pedicia</u>	10	3
Nematocera sm		112
Brachycera		5

I-2:

f - sat - $3/0$ - A - $3/3$ - C₀

	♂	♀
<u>Tipula</u>	28	11
<u>Prionocera</u>	5	
<u>Pedicia</u>	26	1
Nematocera		523
Brachycera		47
Spiders		6
ten thousandths		2

I-3:

f - w - $4/0$ - A - $3/3$ - C₁

	♂	♀
<u>Tipula</u>	3	1
<u>Prionocera</u>	3	
<u>Pedicia</u>	13	
Nematocera	0	-

Sm. 481

Brachycera IIII IIII IIII
Spider - 1

Maclean
1967

tan, 1 foot

[15 July]

I-4:

rp - d - $\frac{4}{10}$ - A - $\frac{4}{4}$ - Co

	♂	♀
<u>Tipula</u>	24	4
<u>Prionocera</u>	-	-
<u>Pedicia</u>	2	-

Nematocera 525

Brachycera ~~|||||~~ = 63

Theridionidae - 1 = 1

Spider - 1 = 1

Braconidae 1 = 1

I-5:

m - d - $\frac{4}{10}$ - A - $\frac{4}{3}$ - Co

	♂	♀
<u>Tipula</u>	24	6
<u>Prionocera</u>	-	-
<u>Pedicia</u>	6	-

Nematocera 457

Brachycera 41

Braconidae 1

I-6:

rp - d - $\frac{4}{10}$ - A - $\frac{3}{3}$ - Co

	♂	♀
<u>Tipula</u>	22	11
<u>Pedicia</u>	1	1

Nematocera 700

Brachycera 89

Braconidae 3

Maclean
1967

Tanglefoot

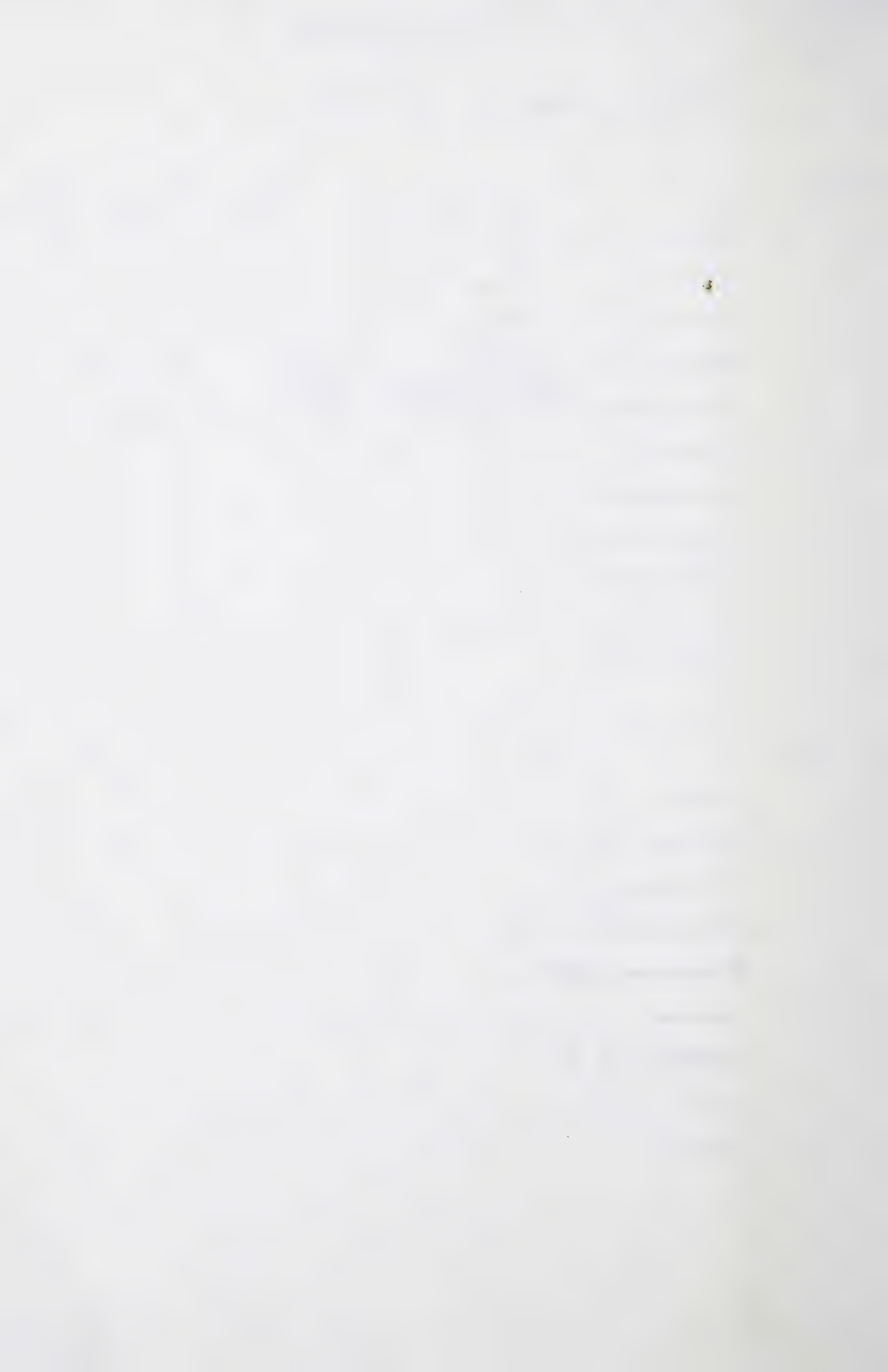
Set II - picked up 15-VII-67

5 July

	-1	-2	-3
Tipula	♂ 18 ♀ 9	♂ 13 ♀ 1	♂ 23 ♀ 3
Pedicia	7 -	5 -	18 6
Prionocera	1 -	- -	1 -
Nematocera	14-111 54-540	606	442
Brachycera			
Spiders	-	-	
Tenthredinids			
Lepidop. (gray moth)	1	-	
Ichneumon.		1	
Trichoptera		-	
Soldier bug		1	
Brocidae			1

II

	♂ 4	♂ 5	♂ 6
Tipula	♂ 19 ♀ 4	♂ 3 ♀ 1	♂ 1 ♀ -
Pedicia	♂ 29 ♀ -	♂ 32 ♀ 3	♂ 15 ♀ 1
Prionocera	-	-	♂ 3 ♀ 1
Nematocera	♂ 1 313	851	3 82
Brachycera		104	83
Spiders		= 4	3
Tenthredinid			
Ichneumon.			
Trichoptera		1	



Maebson
1967

Lang 18 fcs.

[15 July] II-1:

m-d - 2/1-A - 3/3-50

Maclean
1967

+anglejacks

18 July
I:

I-1:

	①		②		③	
	♂	♀	♂	♀	♂	♀
<u>Tipula</u>	2	2	7	1	2	0
<u>Prionocera</u>	-	-	1	0	1	0
<u>Pedicia</u>	-	-	2	0	2	0
<u>Nematocera-lq.</u>	-	-	2	-	0	-
sm.	73		132		145	
<u>Brachycera</u>	5		18		17	
<u>Spiders</u>	1		4		2	
<u>Braconidae</u>	2				1	
<u>Cordobio larvae</u>			1		1	

	④		⑤		⑥	
	♂	♀	♂	♀	♂	♀
<u>Tipula</u>	0	1	0	1	4	2
<u>Prionocera</u>	0	0	0	0	0	0
<u>Pedicia</u>	0	0	0	0	0	0
<u>Nematocera-lq.</u>	0		3		0	
sm.	55		215		264	
<u>Brachycera</u>	5		20		53	
<u>Spiders</u>	0		1		1	
ad. Staphylinid	1					
<u>Ichneumonids</u>			1			
<u>Beetles</u>					3	

Maeha
1967

Tanglefoot

Picked up 18 July

II-

1

2

Tipula

♂
1

Prionocera

Pedicia

Nematocera lg. 3
sm. 221

7
365

Brachycera 18

14
~~14~~

Tenthredinid 1

Bracnid - ♂

1

cicadellidae 1

Spider 1

II

3

4

Tipula

♂ 2
♀ 1

♂ 3
♀ 2

Prionocera

~~1~~

Pedicia

1

Nematocera lg. 4
sm. 46

Brachycera 6

4

Tenthredinid

Spider

1

Bracnid

1

Trichopteran

1

Hachem
1967

Tangle foots

Picked up 18 July

II-	♂ 5	♂ 6
<u>Tipula</u>		
<u>Prionocera</u>		3
<u>Pedicia</u> 4		2
<u>Nematocera</u> sm. 42		1g 1 sm 22
<u>Brachycera</u> 70		59
<u>Trichoptera</u> 2		1
<u>Spider</u>		4
<u>Bracmid</u>		3

21 July

II-	①	②
<u>Nematocera</u> -sm.	41	55
<u>Brachycera</u>	14	17
<u>Braconio</u>	4	7
<u>Ichneumonio</u>	5	1
<u>Nematocera</u> -lg.		2

II-	③	④
<u>Nematocera</u> -sm.	35	42
<u>Brachycera</u>	9	24
<u>Braconio</u>	1	16
<u>Ichneunio</u>	1	1
<u>Nematocera</u> -lg.	1	1

2 of tipula

Machan
1967

Tang lifeboats.

21 July 1967

II -

	(5)	(6)
Nemastocera - sm	5	1
ly.		
Brachycera	28	27
Schizomeres		
Brachymeria	3	2
Spiders	2	1
Colletes	1	
Trichoptera	4	
Prionocera		♂ 1 ♀ 1

Tonguefoots

Picked up 21 July.

I	1	2
Brachycera	9	12
Braconids	2	4 6
Ichneumonids	1	-
Nematocera ^{lg} sm 18		1 48
Tipulids sp.	2	2
Prionocera		♂ 1 ♀
Spider	1	3

I	♂ 3 1	4
<u>Tipula</u>		
<u>Prionocera</u>		
<u>Pedicia</u>		
Tipulid sp.	1	4
Nematocera ^{lg.} sm.	37	34
Brachycera	24	25
Spider	1	1
Braconids		1

Tanglefoot

picked up 21 July
(cont.)

I.

Tipula

1 or 5

6

Prionocera

Pedicia

Nematocera 1g. 1 sm. 32

79

Brachycera 16

30

Baracnids 2

2

Tipulid sp

1

Tangle foots

Picked up 24 July

I

1

2

Tipula

Prionocera

Pedicia

~~20~~

Tipulid sp.

1

Nematocera ^{eg.} ¹ _{sm.} ⁵

19

Brachycera

14

11

Braconids

4

Ichneumonids

2

Spiders

3

I

3

^{eg.}

1

Tipula

^{eg.} ⁴
1

Prionocera

Pedicia

~~20~~

Tipulid sp.

^{eg.} ¹

~~20~~
2

Nematocera ^{eg.} ¹ _{sm.}

1

7

14

Brachycera

19

27

Spiders

2

Braconids

4

Ichneumonid.

1

Tanglefoot

Picked up 24 July

I

5

6

Nematocera ¹⁹ sm.

31

35

Brachycera

~~3~~ 3

40

Braconids

3

2

Ichneumonids

2

Spiders

1

Tipula

1 ♀

Tipulid sp.

3 ♀s

II

1

2

Tipula

1 ♂

Nematocera ¹⁹ sm. 18

sm. 39

Brachycera 28

39

Cicadellidae - 1

Ichneumonids 3

Lepidoptera

2 ♂s

Braconids

15

II

3

♂

♀

1

♂

4

♀

2

Saldid - 1

Tipula

Nematocera ¹⁹ sm.

10

13

Brachycera

11

17

Ichneumonidae

1

Braconidae

5

1

Tipula sp.

1 ♂

1 ♀

Spider

1

Tanglefoot

Picked up 24 July.

II

	5 ♂	6
<u>Prionocera</u>	1	
Nemotocera	Sm. 4	4
Brachycera	21	19
Trichoptera	1 ♀	
Braconids -	2	4
Tipulid sp.		1 ♀

Tonghe roots

Picked up 27 July

I

	1	2
<u>Tipula</u>	♂ 1	♂ 1 ♀ 1
Tipulid sp.	1 ♀ 2	1 1
Brachycera	7	33
Nematocera sm.	9	sm. 11
Braconids	7	3
Ichneumonids	1	11
Lepidoptera	1	
Tenthredinids	1	
Spider		2

I

	3	4
<u>Tipula</u>	♂ 1 ♀ 2	♂ 1 ♀ 3
Tipulid sp.	1	3 9
Brachycera	31	39
Nematocera	18	17
Braconids	1	5
Ichneumonids	3	1
Spiders	1	1

Tanglefoot

Picked up 27 July

I

♂ 5 ♀

♂ 6 ♀

Tipula

Tipulid sp.	1	2
Brachycera	19	55
Nematocera	24	82
Braconids	8	6
Ichneumonids		2
Spiders		2

II

♂ 1 ♀

2

Tipula

Tipulid sp.	1	
Brachycera	28	44
Nematocera	19 sm. 9	19
Braconids	15	26
Ichneumonids	3	
Spider		1

II

♂ 3 ♀

4

Tipula

Tipulid sp.	1	2
Brachycera	5	13
Nematocera	20	14
Braconids	11	6
Ichneumonids	2	
Spider	2	

Tanglefoots

Picked up 27 July

II

5

6

Tipula

Tipulid sp.

Brachycera 35

28

Nematocera 5

4

Braconids 1

6

Trichoptera 1

2

Ichneumonids

2

Spider

1

Tangle foots

Picked up 30 July

I		♂ 1	♀ 2	
	Tipulid sp.	1	2	
	Nematocera an.	5		5
	Brachycera			1
	Ichneumonid			2

I		♂ 3	♀ 4	
	Tipula		1	
	Tipulid sp.	1	2	3
	Brachycera	1		1
	Nematocera	8		3
	Ichneumonid	1		
	Braconid			1

I		♂ 5	♀ 6	
	Tipulid sp.	2	1	
	Brachycera	2	1	
	Nematocera	3	10	
	Braconid	1	2	

Tongle foots

Picked up 30 July

II

	♂ 1	♀ 3	♂ 3	♀ 2
Tipulid sp.	1	3		1
Nematocera	3		4	
Braconid	1		2	
Spider			1	
Saldid			1	

II

	♂ 3	♀ 2	♂ 4	♀ 1
Tipulid sp.	2	2	1	
Brachycera	1			
Nematocera	5		13	
Braconid	1		2	
Ichneumonid			2	

II

	♂ 5	♀ 1	♂ 6	♀ 1
Tipulid sp.		1	1	1
Brachycera	2		3	
Nematocera	2		4	
Braconid	1		2	
Ichneumonid			3	

Machan
1967

Tanglefoots

Picked up 2 August:

I -

	<u>1</u>	<u>2</u>
Brachycerans	5	4
Nematocerans	8	8
Ichneumonids	4	8
Spiders	3	4
Braconids	3	4

	<u>3</u>	<u>4</u>
Brachycerans	9	9
Nematocerans	17	4
Ichneumonids	10	1
Braconids	5	2
Spiders	4	0

2 tipulid sp.

1 ♂ ad. Tipula

	<u>5</u>	<u>6</u>
Brachycera	13	23
Nematocera	2	11
Ichneumonidae	2	4
Braconidae	21	14
Spiders	0	0

2 tipulid sp.

Machean
1967

Tanglefoot

Picked up 2 August:

II -

	<u>1</u>	<u>2</u>
Brachycera	11	3
Nematocera	7	5
Ichneumonidae	3	2
Bracconidae	11	24
Spiders	0	0

	<u>3</u>	<u>4</u>
Brachycera	12	10
Nematocera	5	16
Ichneumonidae	3	3
Bracconidae	22	5
Spiders	0	1

1 tipulid sp.

1 Salixidae

1 tipulid sp.

	<u>5</u>	<u>6</u>
Brachycera	12	13
Nematocera	10	21
Ichneumonidae	10	12
Bracconidae	3	4
Spiders	2	2

1 Salixidae

3 tipulid sp.

Tanglefoot

Picked up 5 Aug. '67

I

	♂	1	♂	2	♀
Tipulid sp.		1		2	2
Brachycera		1		3	
Nematocera	1g.		1g.	1	
	sm.	5	sm.	31	
Ichneumonidae		2		6	
Spiders				2	
Braconids		1			

I

	♂	3	♂	4	♀
Tipulid sp.	#1	4	5	2	2
Brachycera				4	
Nematocera	1g.				
	sm.	23		14	
Ichneumonid		7		2	
Braconid				1	
Spider		1			

I

	♂	5	♂	6	♀
Tipulid sp.	1	2	2	7	
Brachycera		1		9	
Nematocera	1g.	1			
	sm.	9		13	
Braconids		5		9	
Ichneumonids				3	
Spider				1	

Tanglefoot

Picked up 5 Aug. '67

II

	1	2.
Tipulid sp.	1	2 (sex?)
Brachycera	0	2
sm. Nematocera	8	16
Braconidae	4	4
Ichneumonidae	0	
Spiders	1	

II

	♂ 3	♀ 1	♂ 4	♀ 1
Tipulid sp.		1		1
Brachycera	2		2	
Nematocera	19		15	
Braconid	1		2	
Ichneumonid			1	

II

	5	♂ 6	♀ 1
Tipulid sp.			1
Brachycera	2	3	
Nematocera	14	25	
Braconid		2	
Ichneumonid		1	

Maeha
1967

tanglefoot

Picked up 11 August (6 days)

I -

	<u>1</u>	<u>2</u>
Brachycera	9	3
Nematocera - sm.	6	32
Ichneumonidae	3	12
Bracconidae	1	0
tipulid sp.	3	2
	1 ♂ <u>tipula</u> !	-
Spiders	1	-

	<u>3</u>	<u>4</u> (see note)
Brachycera	2	12
Nematocera - sm.	9	3
Ichneumonidae	1	5
tipulid sp.	1	1
Bracconidae		34

	<u>5</u>	<u>6</u>
Brachycera	10	15
Nematocera - sm	9	13
Ichneumonidae	4	11
Bracconidae	9	9
Nematocera - lg	9	5
tipulid sp.		1

note: #4 - bird predaion (dung + feathers on board)
or animals blew away. Identified by legs
left on board.

Mackean
1967

Tanglefoots

Picked up 11 August (6 Days)

II -

	<u>1</u>	<u>2</u>
Brachycera	2	2
Sm. Nematocera	1	3
Ichneumonidae	—	4
Braconidae	6	27
Spiders	1	—
Centruroides larva	1 - 9 mm	—

	<u>3</u>	<u>4</u>
Brachycera	2	4
Sm. Nematocera	5	8
Ichneumonidae	3	4
Braconidae	7	5
Tipulid Sp.	1	—
lg. Nematocera	1	—
Spiders	—	1

	<u>5</u>	<u>6</u>
Brachycera	1	7
Sm. Nematocera	20	51
Ichneumonidae	6	3
Braconidae	0	0
Spiders	1	0

MacLean
1967

+ angle foots

Picked up 17 August:

I -

	<u>1</u>	<u>2</u>
Sm. Nematocera	19	20
Brachycera	4	0
Braconidae	2	1
Ichneumonidae	4	0
Tenthredinidae	5	1
Spiders	1	4
Lq. Nematocera	—	1

	<u>3</u>	<u>4</u>
Sm. Nematocera	20	4
Brachycera	7	4
Braconidae	1	1
Ichneumonidae	18	2
Tenthredinidae	3	1

	<u>5</u>	<u>6</u>
Sm. Nematocera	8	7
Brachycera	2	4
Braconidae	6	7
Ichneumonidae	2	14
Tenthredinidae	3	3
Spiders	3	—
Tipulid sp.	—	2

Maheen
1967

tanglefoots

Picked up 17 August -

II -

	<u>1</u>	2/
Sm. Nematocera	5	22
Brachycera	3	1
Braconidae	12	27
Ichneumonidae	1	1
Tenthredinidae	1	/
Tipulid sp.	1	1

	<u>3/</u>	4/
Sm. Nematocera	19	31
Brachycera	2	1
Braconidae	5	2
Ichneumonidae	6	-
Tenthredinidae	1	2
Tipulid sp.	1	1

	<u>5/</u>	6/
Sm. Nematocera	139	103
Brachycera	4	3
Braconidae	1	3
Ichneumonidae	2	7
Tenthredinidae	3	2
Spiders		2

* - mostly very small.

Hackman
1967

Tanglefoot

Picked up 23 August

I -

	1/	2/
Sm. Nematocera	41	26
Brachycera	3	5
Brachionidae	1	2
Ichneumonidae	13	10
Spiders	—	4
tipulid sp.	—	1

	3/	4/
Sm. Nematocera	31	17
Brachycera	2	5
Brachionidae	3	5
Ichneumonidae	13	5
Carabid as	—	1
tipulid sp.	1	—

	5/	6/
Sm. Nematocera	38	26
Brachycera	1	7
Brachionidae	5	11
Ichneumonidae	4	5
Spiders	2	5

Maclean
1967

Tangle feet

Picked up 23 August

II-

	1/	2/
Sm. Nematocera	25	12
Brachycera	1	3
Braconidae	13	35
Ichneumonidae	2	21
Tipulid sp.	3	—
Spiders	—	1

	3/	4/
Sm. Nematocera	37	74
Brachycera	0	0
Braconidae	18	9
Ichneumonidae	8	4
Tipulid sp.	1	1
Spiders	1	1

	5/	6/
Sm. Nematocera	105 *	* 66
Brachycera	1	4
Braconidae	2	4
Ichneumonidae	5	14
Tipulid sp.	—	—
Spiders	1	—

* very small mostly

MacLean
1967

tanglefoots

Picked up 27 August - 4 days.

I -

	1/ 27	2/ 37
Sm. Nematocera	27	37
Brachycera	—	2
Braconidae	3	1
Ichneumonidae	4	2
Spiders	1	1
Tipulid sp.	—	1

	3/ 26	4/ 31
Sm. Nematocera	26	31
Brachycera	—	—
Braconidae	—	2
Ichneumonidae	3	—
Spiders	—	—

ad. Dytiscid beetle

	5/ 26	6/ 10
Sm. Nematocera	26	10
Brachycera	—	—
Braconidae	2	3
Ichneumonidae	2	3
Spiders	—	1

Maclean
1967

Tanglefoot

Picked up 27 August - 4 days

II -

	1/	2/
Sm. Nematocera	9	4
Brachycera	—	—
Brachionidae	4	4
Ichneumonidae	—	—

	3/	4/
Sm. Nematocera	12	* 201
Brachycera	—	—
Brachionidae	3	3
Ichneumonidae	—	—

* all the same sp. - a true Chironomus.
must have been some kind of swarm.

	5/	6/
Sm. Nematocera	12	20
Brachycera	1	—
Brachionidae	—	—
Ichneumonidae	2	2

Maehen
1967

Pedicia hawaii

13 June

From Berlese extraction of 8 cores
of pond edge soil taken near Fall:

mm: 13, 16, 15, 13, 14, 15, 13, 17, 17, 17, 17, 16, 14, 14

17 June

Berlese extraction - cores taken near
N. Meadow Lake by Beaver:

mm: 16, 15, 17, 12, 15, 15, 14

Maehren
1967

Prionocera gracilistyla

30 June

First adult - a ♂ caught in
one of the Beach Ridge pit-fall
traps.

Maclean
1967

Tipula carinifrons

13 June

From Pond Edge Sods taken near
FAA - 8 Cores extracted by Berlese:

mm: 19, 19, 20

30 June

First adult - a ♂ stuck on tanglefoot

II -

Mackinac
1967

Chironomidae

17 June

1st pupa appeared in son berlese samples taken by Doc Bower near No. Meadow Lake.

21 June

Adults appeared on the tuna tray in fair numbers. Weather was again quite warm.

25 June

Weather has been colder - few adults seen.

30 June

Warmer weather brings good numbers - appear to be all of 1 species - a large one.

Maclean
1967

Insect samples - sex ratio

15 July

Material removed from 25 can
traps at tanglefoot site #1:
(counted 19 July and saved)

	♂	♀
<u>Tipula</u>	1603	426
<u>Prionocera</u>	10	1
<u>Pedicia</u>	474	130

Material hand picked from tuna

surface:	♂	♀
<u>tipula</u>	181	61
<u>Pedicia</u>	103	3
<u>Prionocera</u>	4	3

Vacume sample:

	♂	♀
<u>Tipula</u>	17	1

18 July

From Tanglefoot 1 can traps:

	♂	♀
<u>tipula</u>	87	45

